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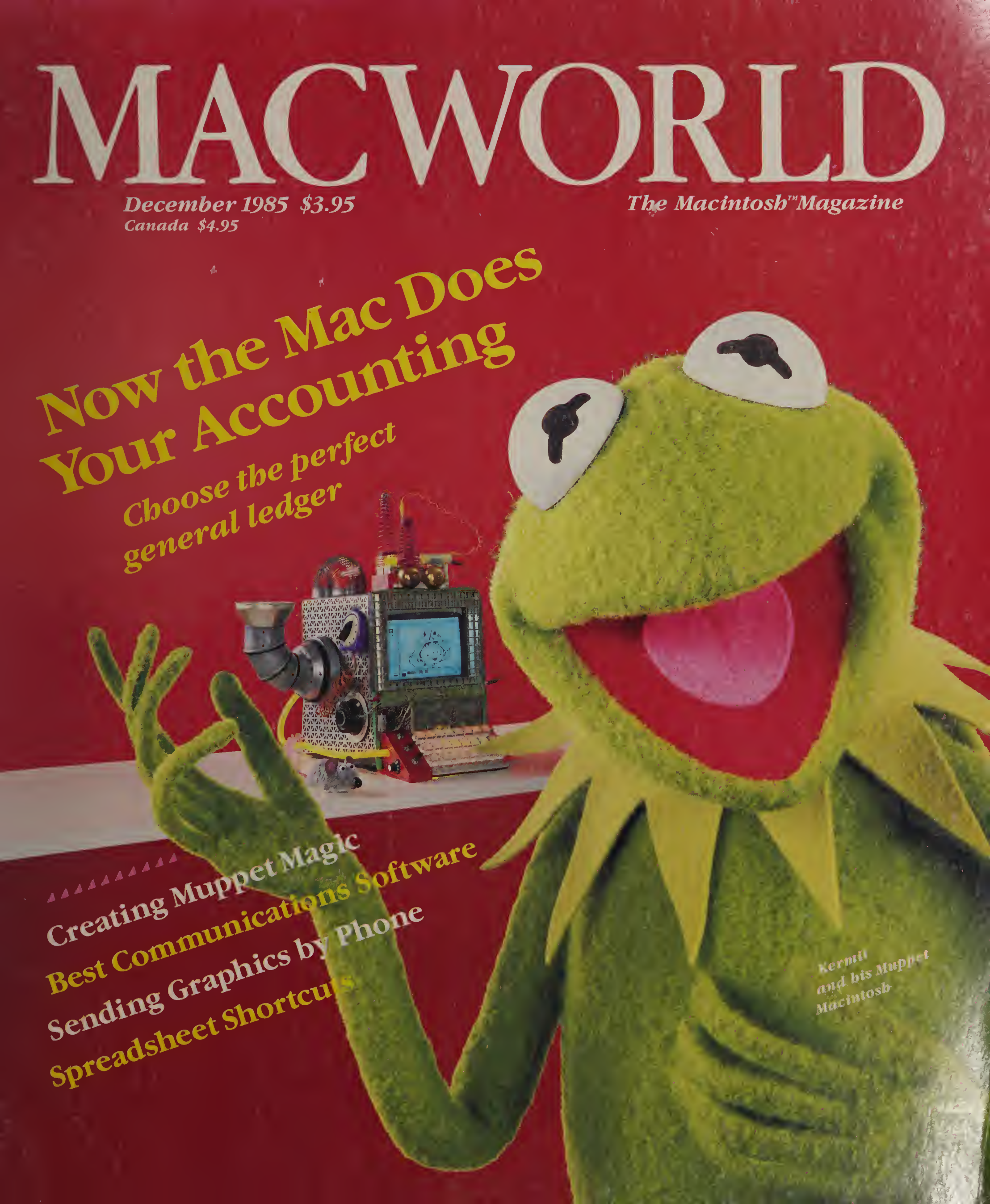

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MACWORLD

December 1985 *The Macintosh™ Magazine*

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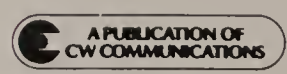

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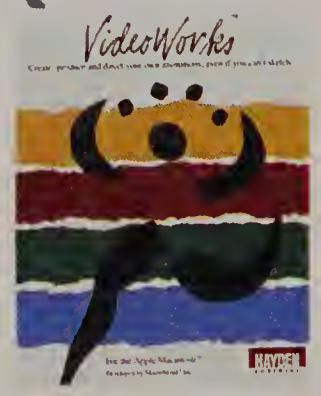

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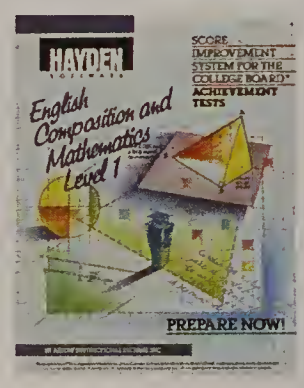

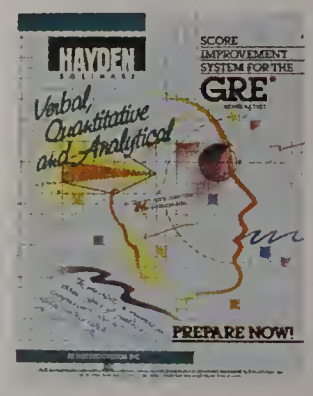

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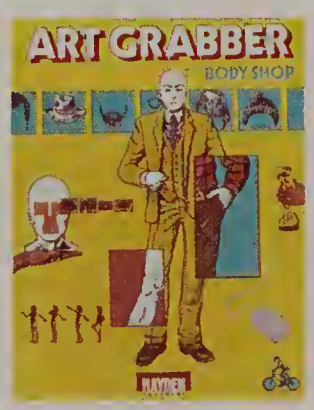

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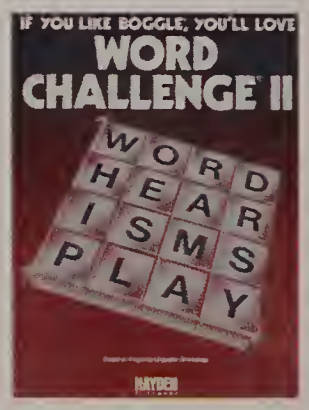

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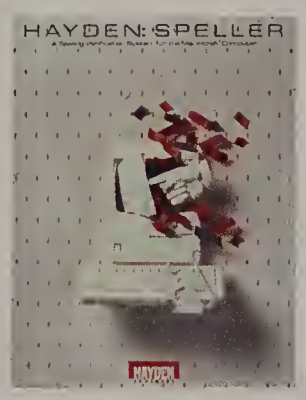

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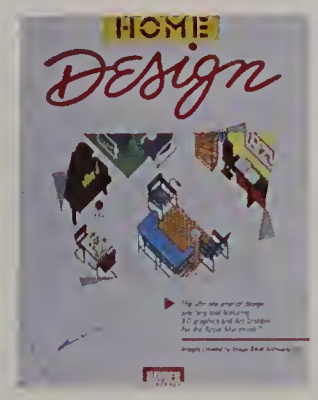

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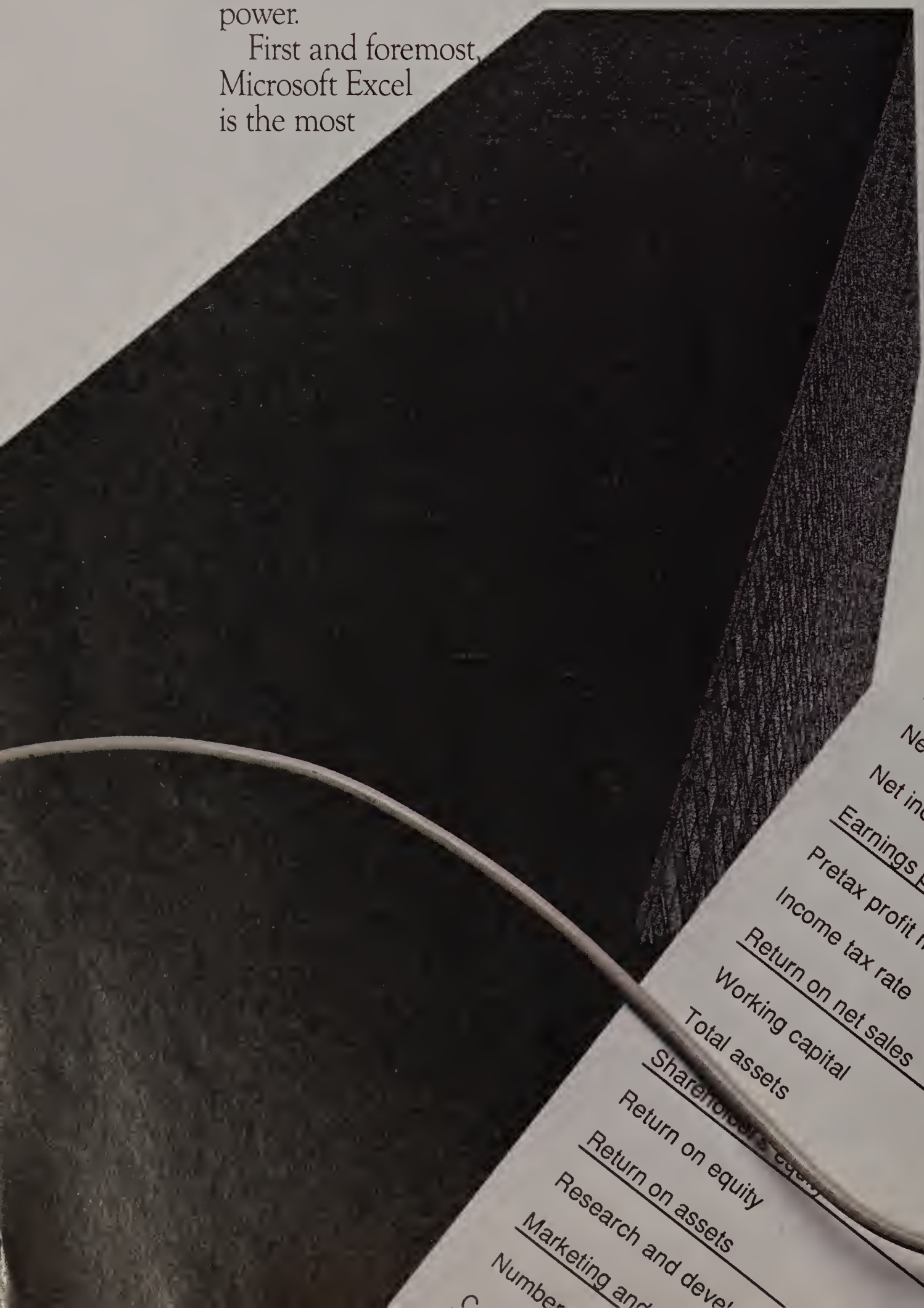

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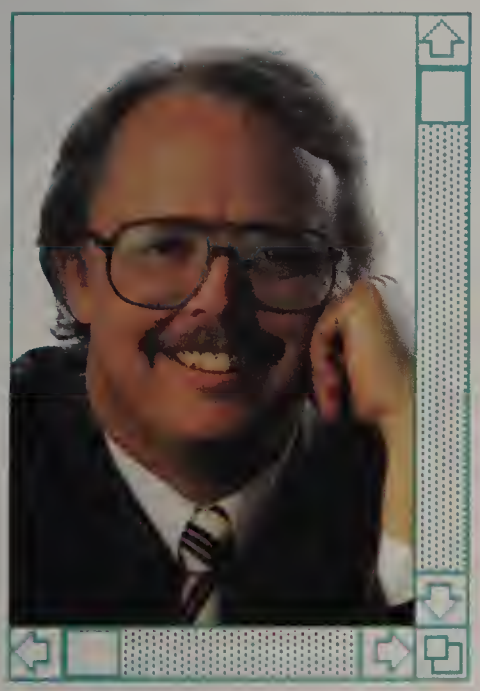
Don't Wear a Suit—Telecommute

For some of us, telecommunications could make car pools, mass transit, and paid vacations obsolete



We have to break through the idea that an executive is a person who drives 33 miles a day to a central location where hundreds of thousands of people work in cubicles and unless you go there, nothing gets done.

—Alvin Toffler

A technological revolution is supposed to happen overnight, but it usually evolves at a snail's pace until it suddenly becomes a fait accompli. For instance, automobiles, televisions, and even VCRs experienced slow starts; then, voilà! they were everywhere.

Telecommunications is no exception to this pattern. Marcia Kelly, president of Electronic Services Unlimited, a telecommunications consulting group, estimates that over five million people now telecommunicate to work—at least part time. Over 100,000 are participating in formal telecommuting programs in some 400 companies, including giants such as Pacific Bell, IBM, ComputerLand, and Hewlett-Packard.

In 1973, when Jack Nilles of the University of Southern California's Center for New Futures Research coined the term *telecommunications,* a new chapter was added to Sir Thomas More's *Utopia.* Predictions abounded that soon we'd all be sitting out in the sun and fresh air, reading our office mail and doing our business plans via telephone links to the company's central computer.

The dream is coming true, and people are telecommuting—but from cars, hotel rooms, and satellite offices. When implemented correctly, telecommunications cuts costs and increases productivity. Employees eliminate commuting time and expenses, and they work more efficiently without the countless interruptions that inevitably occur in the office. Companies experimenting with telecommuting experience less turnover and find that their employees are healthier. These corporations are also able to hire disabled or housebound people without having to expand or customize office space.

Despite all its virtues, telecommunications isn't for everyone. Some people just aren't self-starters and require the motivation of the office environment to work. Others fear they might lose track of company politics and thus opportunities for advancement. To compensate for such alienation and isolation, Electronic Services Unlimited recommends that all employees go into the office once or twice a week.

The luxury of going to the office, however, isn't always possible. I recently had the opportunity to put hard-core telecommuting to the test when I went on an 11-day business trip to Miami; Washington, D.C.; and New York. My staff in San Francisco had received several test subscriptions to AppleLink, the on-line network that Apple Computer developed with General Electric's GEISCO for Apple dealers. We were curious to see how well we could communicate without resorting to Federal Express. Since my Macintosh is much easier to tote around than my Compaq Deskpro, I packed up my Mac and a Hayes 1200B modem and hit the road.

After arriving in Miami for an electronics conference, I encountered my first problem: the

(continues on page 14)

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(continued from page 11)

phone in my hotel room didn't have a modular jack. I couldn't connect my modem. Although convinced that the concierge wouldn't know what I was talking about, I rang the front desk. To my surprise he said, "One moment, sir, I'll connect you to the telephone department."

After speaking with the telephone manager, who assured me that a new jack would be installed immediately, I left to attend a 2-hour seminar. When I returned, the modular jack was in place.

With the deliberation of a surgeon about to make the first cut, I assembled my tools. My Mac running, modem connected, and software loaded, I clicked the phone icon. The reassuring sound of the Hayes dialing the local AppleLink access number soothed my nerves. One ring, click, and static—the sound of two computers shaking hands. I was connected. There was mail in my in-basket. I was in telecommunicator's heaven.

The honeymoon lasted for the three days that I was in Miami. I had it all. The swimming pool, the sunshine, the golf course, and telecommuting. I could send mail to anyone in the home office, read messages, and even transmit and receive files. One of my contractors sent a *ThinkTank* outline that I was able to download and review. We even used a combination of the AppleLink system and our Tymshare network to convert a *WordStar* file to *MacWrite*. At one point, I communicated with an associate also away on business. Neither of us knew where the other was, and had we been at home, we probably wouldn't have connected—but on line we made a great team.

The bubble burst when I left Miami. I called the hotel in Washington, D.C., to verify that the rooms had modular jacks, but when I checked in and set up my instant office, I couldn't connect with the AppleLink network. Every time I dialed the access number, the phone went dead after the connect signal.

I was devastated. The thought of having to rely once again on the telephone and Federal Express was truly depressing. I never did manage to log on during my sojourn at the nation's capital.

In New York, my room didn't have a modular jack, and the hotel manager was less helpful than the one in Miami. I finally managed to get a new jack installed—only to find that the line went dead as it had in Washington. Desperate for one more hit of telecommunications, I played my last card: I had the hotel install a dedicated line in my room—for a mere $125—on the chance that the switchboard was causing the problem.

It didn't work.

Back in San Francisco, I relayed my tale of three cities to my colleagues. The consensus was that hotel telephone lines are too weak to sustain telecommunications. As the "dedicated line" in New York still went through the hotel switchboard, the theory made sense. But when I attempted to log on

(continues on page 18)

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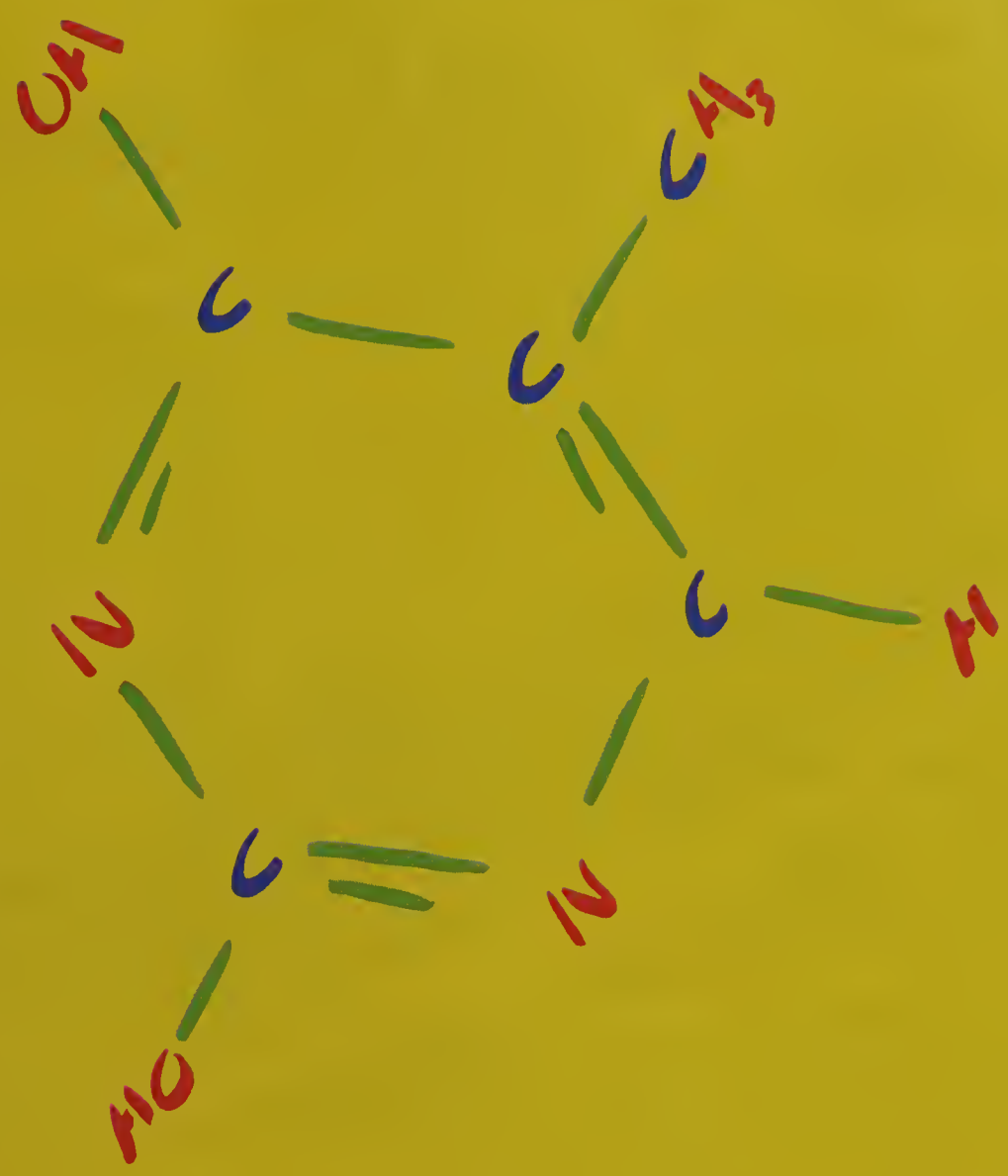

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SUMMAGRAPHICS

Clean up your Mac!

If you're serious about graphics, it's time you stopped mousing around. And you can. With MacTablet ™, the peripheral that turns your Macintosh™ into a graphics workstation.

Like most people, you bought your Mac for its graphics capability. But you've probably found that, while a mouse is fine for pointing, drawing with one is like painting with a bar of soap. It has its limitations.

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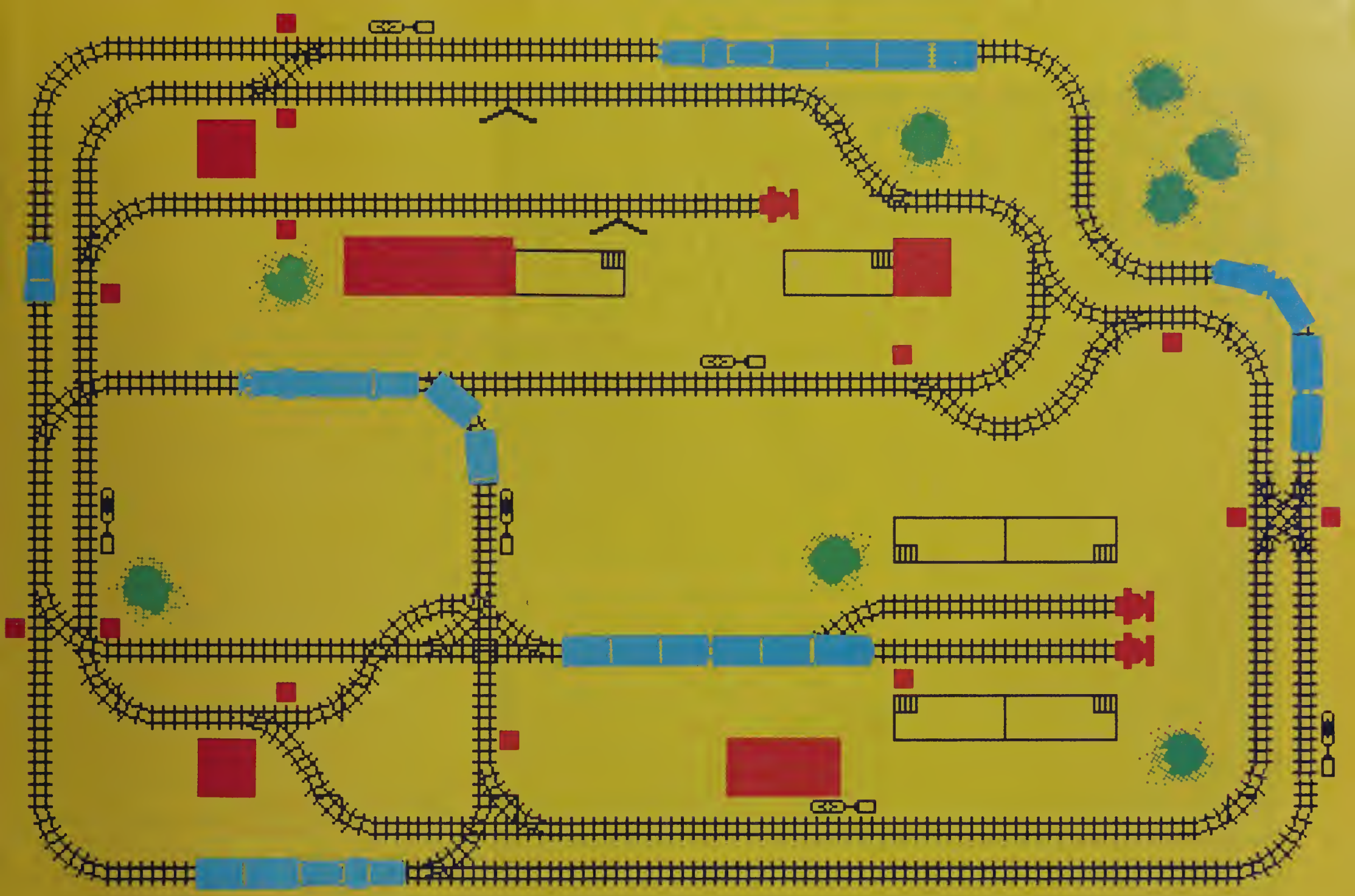


Pardon me, boys, is this the MacInooga Choo-Choo™?

Yes! It's a super true to life electronic train set!

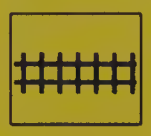
If you really want to let off steam with your Macintosh Computer, don't miss the MacInooga Choo-Choo. This whole new kind of model railroad lets you build elaborate train systems right on your screen, then bring them to life with the click of a switch.

Express Yourself.

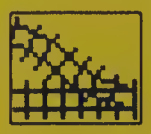
MacInooga Choo-Choo provides a dazzling depot of realistic icons you can quickly assemble in an infinite number of permutations. Layer tracks in complex curves, then send cars careening around corners. Cause havoc-wrecking crashes. Or harrowing near-misses. Add station houses, bridges and trees. All the bells and whistles are built-in, so unlike other model train sets, there are no expensive extras to buy.

Working On Your Railroad

Using the mouse, or keyboard, you simply pick up desired images, then place them on a grid.



TRACKS: Pieces can be flipped, rotated, added singly or in a series.



LAYERED TRACK: Place pieces on top of each other for double tracks or crossovers.

TERRAIN: Trees, buildings, all the authentic model train set extras.

ROLLING STOCK: String engines, cars and cabooses together any way you want.

Timed For Holiday Arrivals

At just $39.00, the MacInooga Choo-Choo makes a great gift for your favorite Macintosh Engineer, or give yourself a break!

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But make tracks now! Supplies of this special program are limited!

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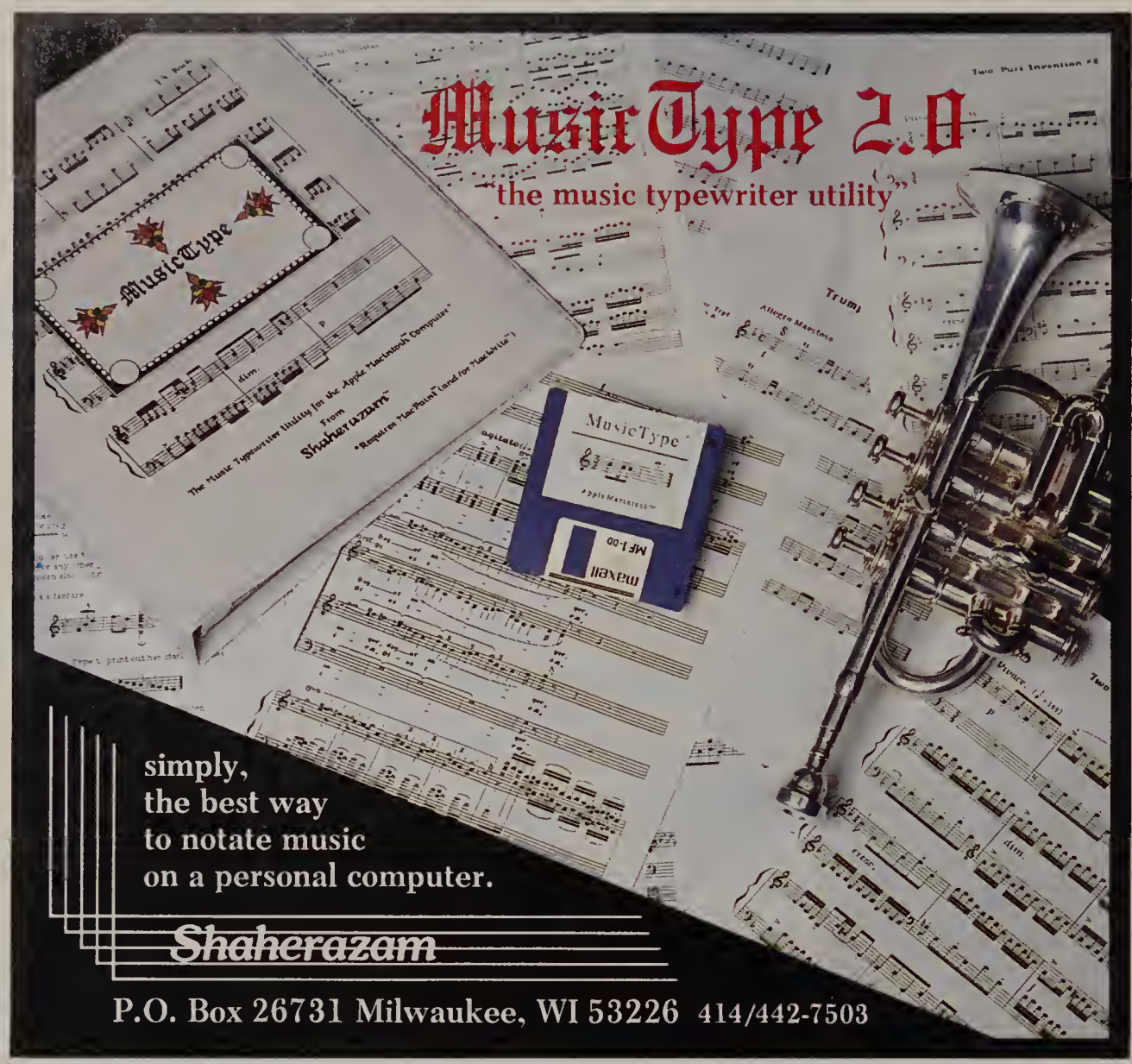
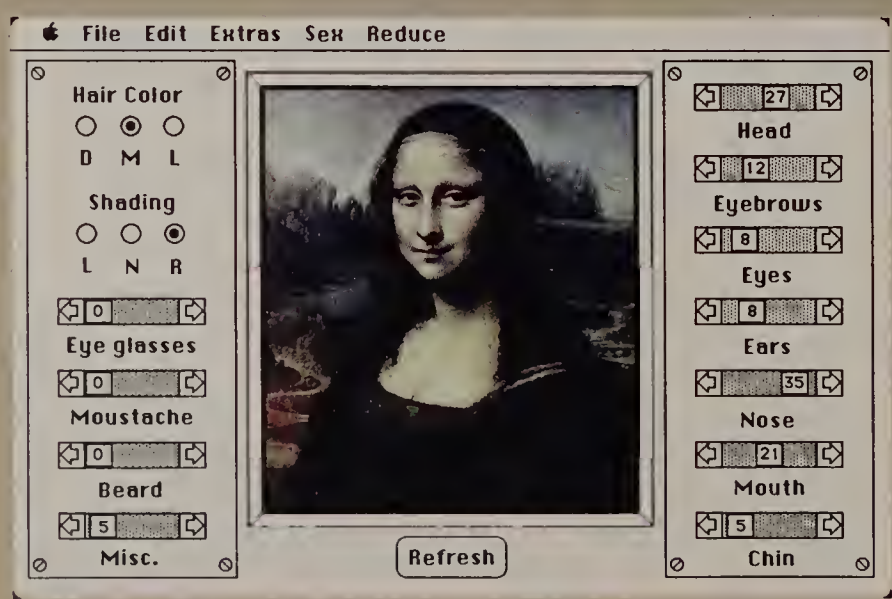


Will you be able to create a masterpiece with Mac-a-Mug?



Probably not.
But you can create thousands of interesting faces with a click of a scroll bar! Its easy and anyone can do it. With hundreds of features, the possibilities are endless!

Mac-a-Mug
"the people processor"

Shaherazam
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Circle 35 on reader service card

David Bunnell

(continued from page 14)

at home and finally read my mail, the phone again went dead.

After fooling around with my equipment for a while, I discovered my disk was faulty. With a borrowed copy of AppleLink software, I logged on at the first ring, and the system has been working ever since.

I'll never know if the hotel lines in Washington and New York were too weak, or if something happened to my disk on the plane from Miami. But I do know that telecommuting is great–when it works. I found myself sending long, philosophical messages to staffers I hardly impart ten words to under normal circumstances. And monitoring a project through teleconferencing beats roundtable discussions any day.

Yes, telecommunications is wonderful. But if you or your company is interested in participating in this new-age phenomenon, you'd be well advised to consult with the experts. Electronic Services Unlimited has helped many companies get connected and avoid mistakes. Give them a call–it could be the start of something big. □

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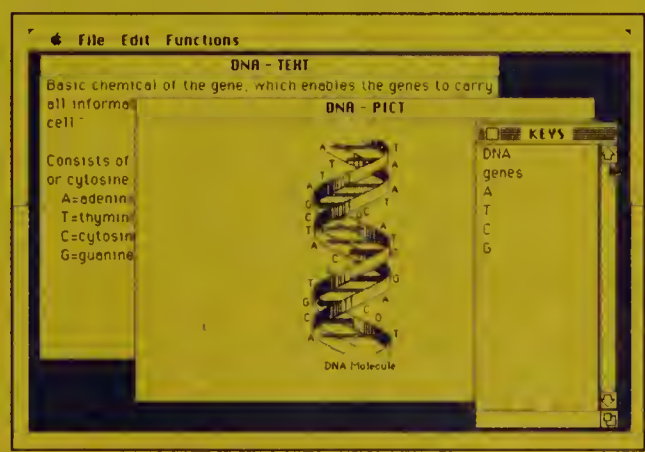

Find and pull information in a flash.

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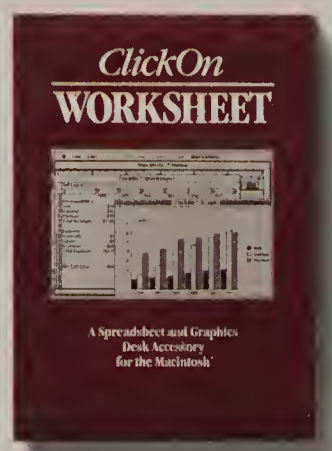

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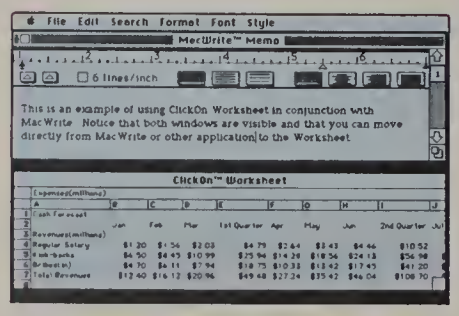
New Power for your Desktop

ClickOn Worksheet is a desk accessory that adds a spreadsheet and grapher to any application. The 50 row × 20 column spreadsheet includes features such as variable column widths, absolute/relative addressing, built-in financial calculations (like net present value, compounding, future value) and logical operators.



Ready-made Solutions

To make your job even easier, we've included a dozen popular applications templates.

Requirements:
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Price: $79.95

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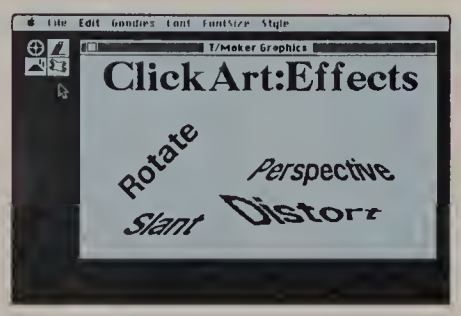
ClickArt Effects Picks Up Where MacPaint Left Off

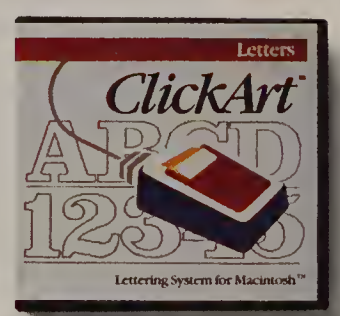
Now you can produce the special effects you've always wanted in MacPaint. Rotate your words or pictures a few degrees at a time. Or slant them. Or give them perspective through a vanishing point. Or even use a distortion box to create the perception of a twist. All with four new tools called ClickArt Effects.



Works Right Within MacPaint

Effects gives you four new tools—rotate, slant, distort and perspective—which work directly from within MacPaint.

ClickArt Effects
Price: $49.95



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ClickArt Publications is a collection of images specifically designed for creating newsletters, flyers and invitations. It includes two- and three-column layout guides with illustrated headlines (like "Letters to the Editor," "On Vacation," "Party," "Thanks" and "Bon Voyage") sized to fit the layouts. It also contains cartoons, maps of the USA and Europe, illustrated alphabets, and much more.

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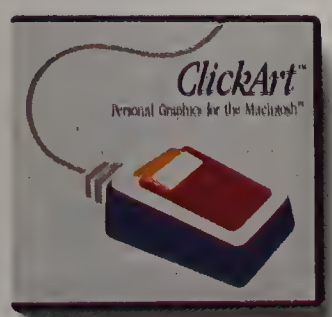

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Personal Graphics is a disk-full of contemporary images from small dingbats to full-screen portraits. Images include Einstein, Michelangelo's David, animals, cartoons, cars, wine bottle, city skyline. They're great for adding a personal touch to invitations, stationery or announcements.

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This Christmas, make it easy on yourself—with Maccessories. You'll find the perfect gift for every interest and budget. From a Control Center or A-B Box to a Tilt/Swivel or Cleaning Kit. A Maccessories Mouse Pocket, Mouseway or Dust Cover is a perfect stocking stuffer.

And Maccessories are very affordable—only $10 to $100. See them at your local dealer. Or, for a free 12 page brochure, contact Kensington at 251 Park Avenue South, New York, NY 10010. (212) 475-5200.

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Letters

Cutting the Hype

A magazine, like a book, shouldn't be judged by its cover. Your September cover seemed to suggest that the issue would feature *Jazz* and *Excel* as dueling spreadsheets, with the better one prevailing over the other in a monumental software struggle.

Inside, in fact, the articles on *Jazz, Excel,* and a third spreadsheet program, *Crunch;* the article comparing the three programs; and even the interviews with Bill Gates and Mitch Kapor all arrived at the only possible conclusions: each of the spreadsheet programs is addressed to a specific segment of the software market, and the choice of a spreadsheet program is an individual one, whether the "individual" is a person or a business.

I am glad that your articles helped clarify the seeming controversy, which is more marketing hype than useful substance.

Julie Weidenbach
Highmore, South Dakota

Everyman's Spreadsheet

As the chief purchasing officer of a Dallas investment firm, I was responsible for researching and selecting a spreadsheet for the company's employees. In the article "The Spreadsheet Choice" [*Macworld,* September 1985], the author does an excellent job of characterizing the differences among *Jazz, Excel,* and *Crunch* and points out that each program is uniquely suited to certain applications and purchasing considerations. However, the three spreadsheets become rivals when they are considered by an organization for a large-scale purchase.

Organizations have good reason to use a single spreadsheet program. Using different spreadsheets requires extra training and means that data files must be converted every time co-workers want to share information. When an entire organization uses the same program, an advice pool is formed. Each person can benefit from the experiences of others.

When it comes time to choose one spreadsheet for a group of employees, the most versatile spreadsheet is the obvious choice. Although only a fraction of my company's spreadsheet users need the advanced capabilities of *Excel,* the fact that it provides those capabilities means everyone in the company should have it. Some of the employees I polled were anxious to take advantage of *Jazz*'s flashy integration, especially for reports, but the fact that *Jazz* can't link spreadsheets took it out of the running. The ability to link spreadsheets is essential to a large business like ours.

While some people argue that advanced features make a program more confusing for beginners, a well-rounded program should have such features available for people who need them. As long as beginners are not forced to deal with them, advanced features should not cause confusion.

Laura Whitworth
Dallas, Texas

I Love Lisa

If Larry Tesler felt pangs when Lisa, a.k.a. Macintosh XL, production terminated, I and, I believe, thousands of other Lisa users suffered heartbreak [*Note Pad, Macworld,* September 1985].

My company, Group 4 Construction Project Services, and its affiliates own eight Lisa computers and five Macintoshes. We have well over 50,000 labor hours invested in those machines, both in our construction business and as a software developer. The power and ease of use of the Lisa continue to amaze me, even after two and a half years of continuous use.

As great a machine as the Macintosh is, our training period for employees is much shorter and the productivity of our staff is far greater with the Lisa Office System.

Tesler's group developed the most significant operating system for the office since the introduction of personal computers. He and his colleagues should be praised for brilliant work. For our applications, the Macintosh is a compromise on the issue of office productivity. We are optimistic, however, that Lisa's true legacy will be a Lisa-class computer within the Macintosh product line.

Bert J. Warbington
Nashville, Tennessee

Gambled and Lost

Larry Tesler's glowing superlatives about the Lisa certainly cannot be supported by our experience here at the state insurance system. Theoretically and perhaps technically, the Lisa merits the kudos Tesler heaps upon both the computer and its development team. But in reality the machine is unreliable, and support for it is virtually nonexistent. The Lisa is a lemon and a sour one at that. Within the last six months we have had two major failures of the Lisa and at least a dozen minor ones.

We are disgusted with Apple. We will not remain committed to the company or its products. We are obliged to the public we

(continues on page 26)

It's easy with Factfinder.

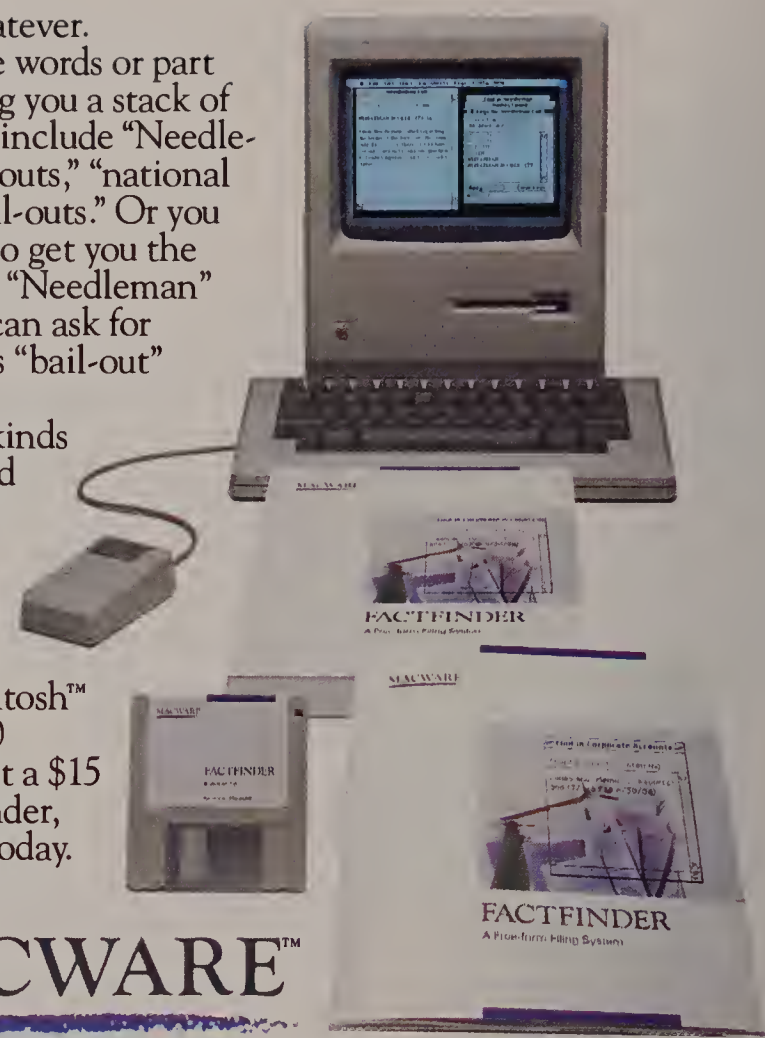
Because Factfinder™ is a kind of electronic "desk-drawer" where you can just toss information without worrying about how it should be arranged or how you might want to use it. There are no fields to define, no formats to set up.

When you need to find all the clients you have who hate olives or live in Denver; when you want to collect your notes on pasta merchandising; when you need the name and number of that guy who's looking for leveraged buyouts, it's yours in a few seconds, at your index fingertip.

You just key in your notes on the Needleman Plan (or Needleman vs. Nardoff or the Needleman Noodles campaign) in any length you want, and click the mouse on a few key words—"fallout," "bail-out," "roll-out," "leveraged buyout," whatever.

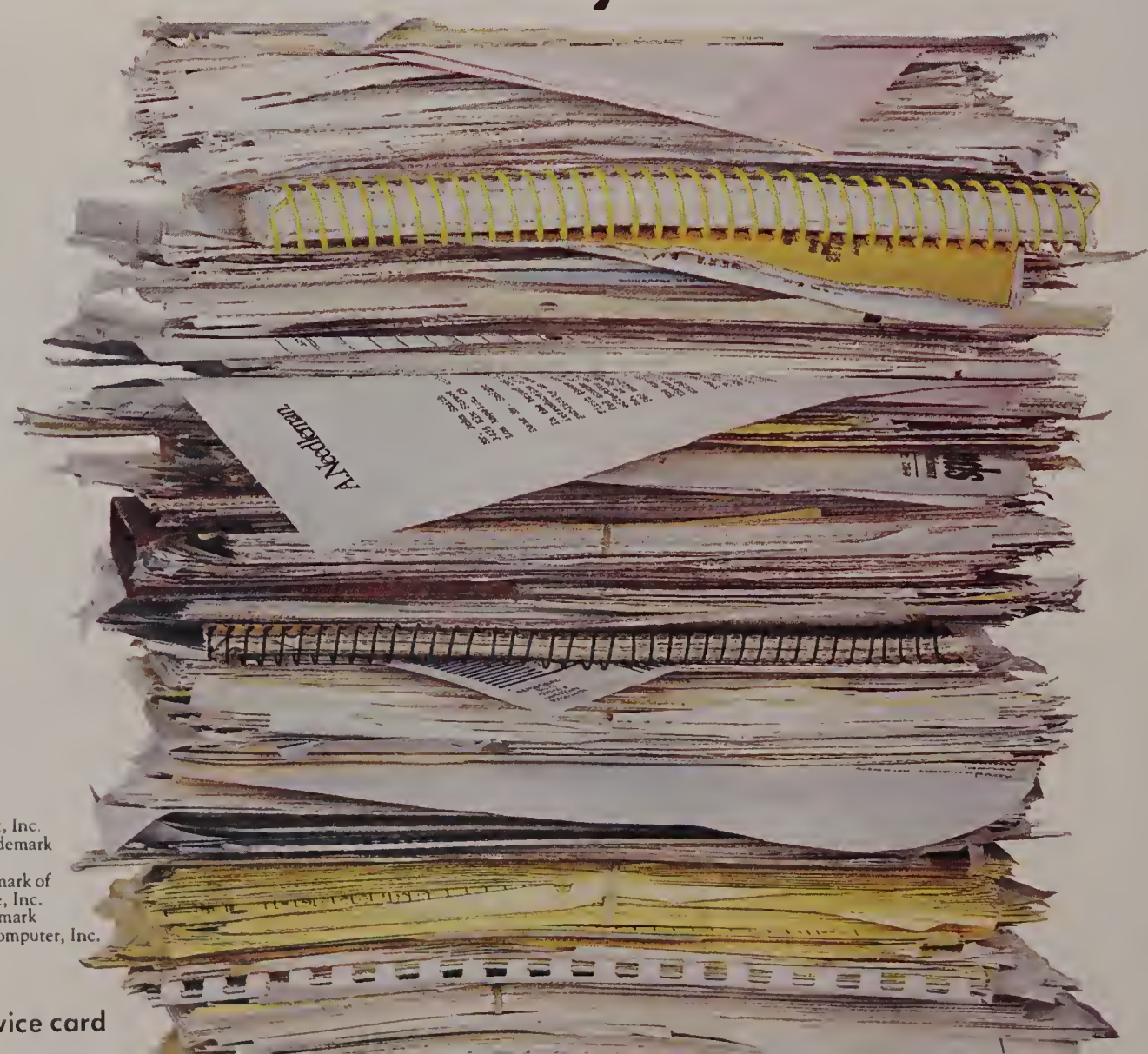
Then, any of those words or part of those words will bring you a stack of notes you've made that include "Needleman," or "leveraged buyouts," "national rollouts" or miracle "bail-outs." Or you can request Factfinder to get you the Factsheet that contains "Needleman" *and* "bail-out." Or you can ask for anything that mentions "bail-out" *or* "Needleman."

Factfinder has all kinds of features like zoom and automatic word wrap. And because it's not copy protected, it's easier to use, easier to back up, and easier to configure for the Macintosh™ Office. All for just $150 (suggested retail). To get a $15 demo version of Factfinder, call 1 800 MACWARE today. From Forethought, Inc.



MACWARE™

How to find a Needleman in a haystack.



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- Prints your client bills in a variety of formats
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- Car-rt sort or zip + 4
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- Hard disk compatible
- Full use of the MAC Interface
- $125.00

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(continued from page 23)

serve to limit our losses and prevent similar situations from happening again.

Vance A. Hughey
Carson City, Nevada

With a Friend Like Amiga

The Commodore Amiga has three desirable features that the Macintosh does not. First, the Amiga has color. Second, the Amiga is very fast because of several "dedicated" chips that bypass the 68000 for graphics, animation, and sound. And third, the Amiga has open architecture. The people at Apple may solve some of the Mac's problems in the future, but for now we must live with its minor flaws.

The Amiga, however, will not be used in the same way as the Macintosh. Most people will be unable to justify the need for its special features. I think that, instead, the machine will be used mostly by game, video, and music enthusiasts.

Darren J. Van Soye
Irvine, California

One from the Heartland

In your August *Macworld View* you presented information about Pennsylvania farmers running Macs ["The Farmer's Macintosh"]. How about a number where we farmers who use the Macintosh in other states can contact those Pennsylvania farmers?

Don Bathe
Arcadia, Missouri

For more information call Pennsylvania State University's Cooperative Service, 814/863-3449.—Ed.

Macworld Enquirer

Rob Swigart's note entitled "Divining with the Mac" [*Macworld View, Macworld,* August 1985] displays a degree of gullibility that would be acceptable in a tabloid purchased at the supermarket checkout but seems out of place in a magazine devoted to technology-related issues. Swigart's bland acceptance of the Mobius Society's claims for the efficacy of psychic search techniques, in spite of the generally dismal record of psychic research, does not enhance the reputation of your magazine.

Daniel M. Dobkin
Stanford, California

AlmostThereWare

I know you cannot be held responsible for the claims of companies advertising in your magazine, but the least you can do for us software suckers is adopt some ethical standards for product reviews. Don't you think you owe it to *Macworld* readers to review only programs that exist? The situation is bad enough as it is given that many programs have to be bought sight unseen. Few retail outlets carry a decent range of products. A magazine such as yours should carry reliable and responsible coverage of products. It is often the only source of information that gives some idea of what products are available and whether they can do the job.

William Bowles
Brooklyn, New York

Our policy is to publish reviews of new products only when manufacturers assure us that the products will be released by the time of publica-

(continues on page 31)

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THE APPLE MACINTOSH BOOK. It quickly became the most popular book on this revolutionary machine. Now... for current or prospective Macintosh owners, or those considering 512K upgrades... here is a timely and authoritative new edition. And, like the first, this edition is sure to dazzle, inform, and inspire.

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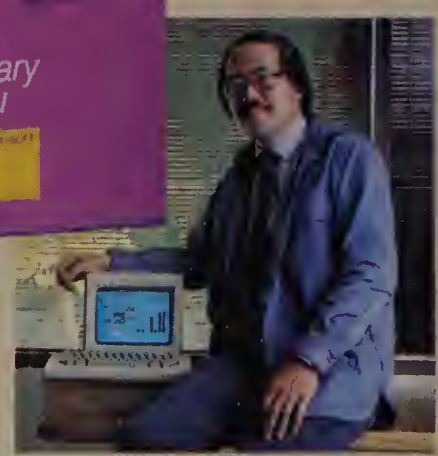

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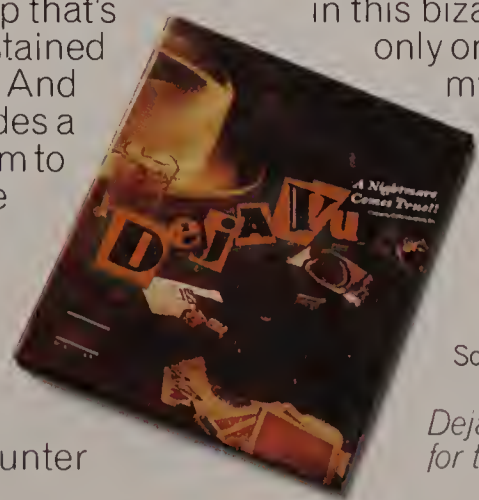

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(continued from page 26)

tion. But because of eleventh-hour revisions that delay scheduled release dates, a review of a product may be published before the product reaches computer store shelves.–Ed.

Stock Exchange

I too was flabbergasted by the news of Steve Jobs's removal as head of Apple Computer [see "Mutiny on the Bounty," *Macworld,* August 1985]. I love my Macintosh, and I like to think of the original Mac developers continuing to work on their dream. Maybe it will be several more years before Apple pays a stock dividend, but I have great faith in the Macintosh. I am sure it will mean much financial success for Apple.

My reaction to the news was to buy Apple stock. Perhaps the gesture is futile, but I wonder what would happen if every Macintosh owner bought a few shares of Apple. Can you imagine a user-controlled computer company?

Edward L. Tripp
Ignacio, Colorado

Flabbergasted II

I too was flabbergasted, not by the ousting of Jobs but by David Bunnell's column in the August *Macworld.* You're certainly entitled to an opinion, and I would expect it to be biased toward the Macintosh, but please try to keep some perspective.

The Mac was crippled by Jobs during its conception. The Mac's tremendous abilities are a credit to Jobs and his team, but let's not forget that Jobs must also assume responsibility for the machine's limitations.

I work with an Apple II, an IBM PC compatible, and a Macintosh. The Mac is fun, but when I need productivity, I turn to the other computers. I doubt the Mac will make it in the business world. It will easily be outpaced by newer machines before it can get a foothold.

But it was your slur at Steve Wozniak and the Apple II that prompted this letter. Really! Criticizing the II for not being able to display lowercase characters–I suppose you disdain the Model T for its lack of air conditioning and power steering?

Please, praise the Mac all you like. But lay off Woz and the II.

Arthur H. Ude
Stoddard, New Hampshire

Beyond Flabbergasted

David Bunnell's inflammatory comments about the Apple II series of computers and Steve Wozniak were completely out of line. You must realize that without Wozniak and the Apple II, the Macintosh would never have existed.

As someone who works with both the Apple II and the Macintosh, I can't see why a devotee of Apple should criticize one machine simply because they believe in the other.

Lewis A. Etheridge
Columbia, South Carolina

Putting In a Good Word

As Microsoft's product manager for *Word,* I want to respond to two letters, which appeared in the September 1985 issue of *Macworld,* regarding *Microsoft Word* for the Macintosh.

(continues on page 33)

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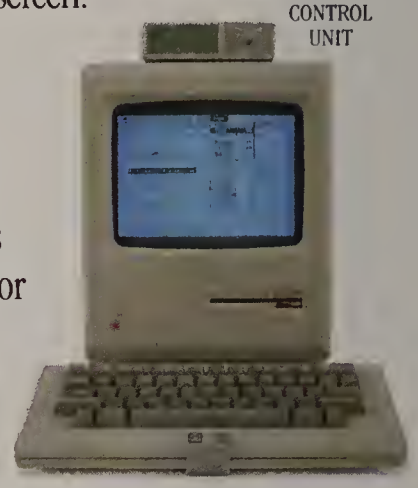

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Product Review

It's all quite interesting and sexy in a technological way, but how well does it work? I have used the VCS for a week. The first day was something of a strain, as I found myself overshooting screen targets and making exaggerated head motions. After a few days, using the system became second nature. My thumbs fell readily on the buttons below the space bar, and the cursor always seemed to be just where I was looking. After a week, you'll wonder how you managed without it. On the whole, the View Control System represents a real advantage over the mouse for many Mac tasks.

ICON – *Magazine of The Association of Apple 32 Users.*

Customer Letters

I just received my VCS and am more than delighted with its performance. I couldn't believe that it would be able to work one pixel at a time but it does, and that with less than an hour's use. It's the best thing yet that I have seen for controlling the Macintosh.

My daughter and I are certainly enjoying our "flying mouse." Not only is it terribly ingenious, it really works very smoothly and with fine sensitivity. Congratulations on an innovative advance.

I am a university professor and I do a substantial amount of writing. I just finished a monograph of about 64 single-spaced pages. I used the VCS for the entire project and it performed beautifully. If there were a market for my mouse, I might sell it.

VCS™

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(continued from page 31)

The letters detail several specific points, including the screen display of running heads, slow printing, and the Macintosh screen display. Microsoft has addressed several of those points in an upgrade to *Word* released in June–version 1.05. Other points require clarification of how *Word* operates.

Word does use a different method than *MacWrite* for displaying running headers and footers but makes up for the difference with an increase in functionality. With version 1.05, underlined carriage returns are no longer printed. The program does not have a macro facility, but it can search for special marks such as paragraph returns, tabs, and space marks. Using this facility is much quicker than deleting carriage returns by hand.

Regarding slow printing and the 128K Macintosh, I can only assume that the document that took so long to print contained a number of fonts and styles. Because *Word* does not require a print file to be built and sent to disk prior to printing, the program allows you to print large documents without worrying about disk space. The program, however, must perform printing calculations page by page.

Word version 1.05 can recognize a 10-point font when the program returns from typing 10-point footnotes. It no longer defaults to 12-point type.

Bill McGee
Bellevue, Washington

Word to the Wise

Take a look at *Word*'s menu bar, and you will see that the program works on three levels: document, paragraph, and character. Margins are a document-level feature. Paragraph indents are a paragraph-level feature. Mixing the two levels can produce some strange results.

The problem Peter Yudkin describes in your September *Letters* ["Discouraging Word"] comes from trying to set the margins for the document by adjusting the right and left indents of every paragraph instead of using the Page Setup dialog box. The confusion on this issue stems from the differences between *Word* and *MacWrite*. Everyone who uses *Word* is probably familiar with *MacWrite,* and work habits are easy to carry over. One such habit is setting the document margins from the ruler, which is the only way to do it in *MacWrite*. But in *Word* the ruler shows the attributes of the currently selected paragraphs. To change settings on the ruler is to change attributes at the paragraph level. Changing the margins is a document-level function, which can't be done on the ruler.

Laurence F. Kirsh
Sterling, Virginia

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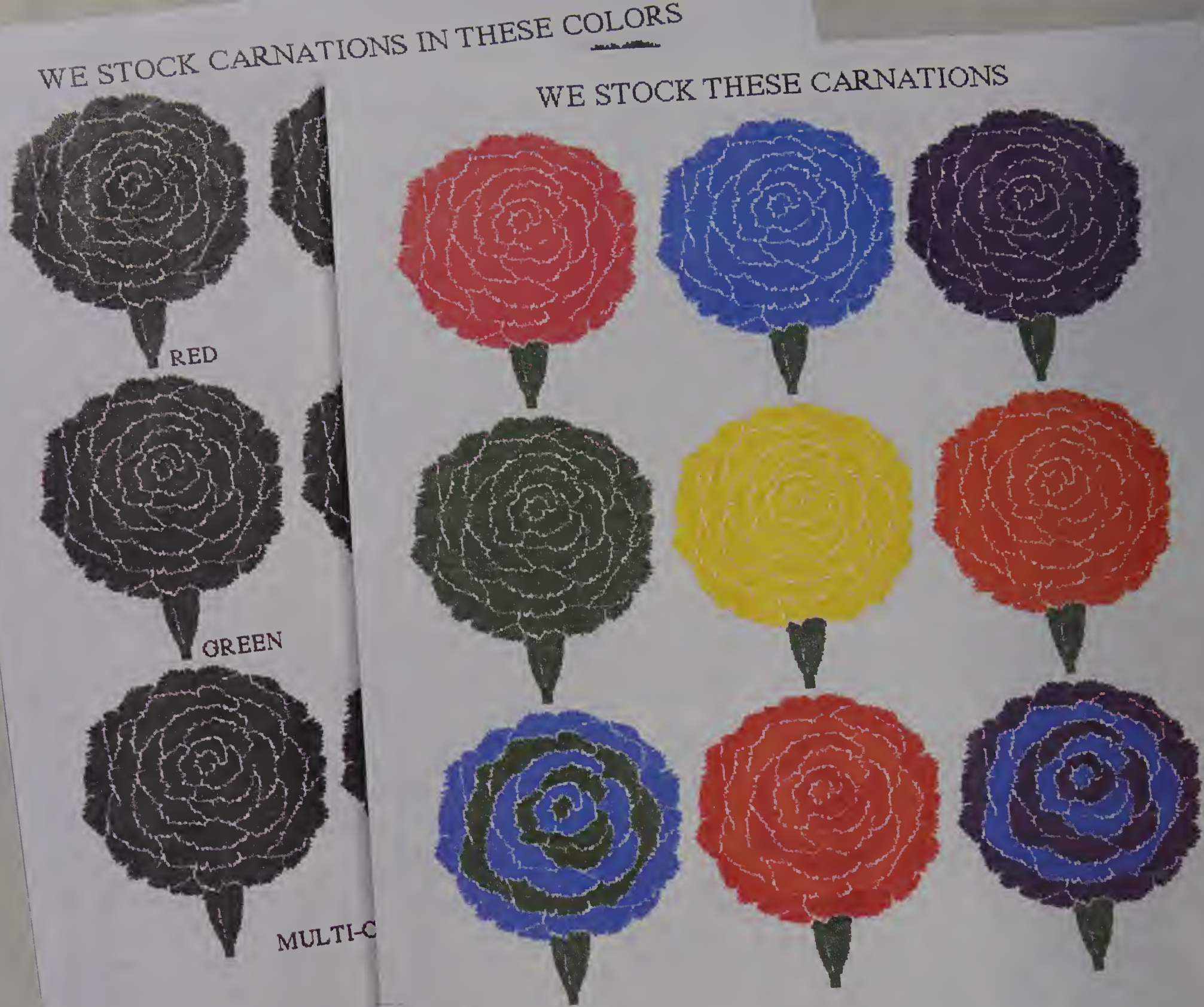

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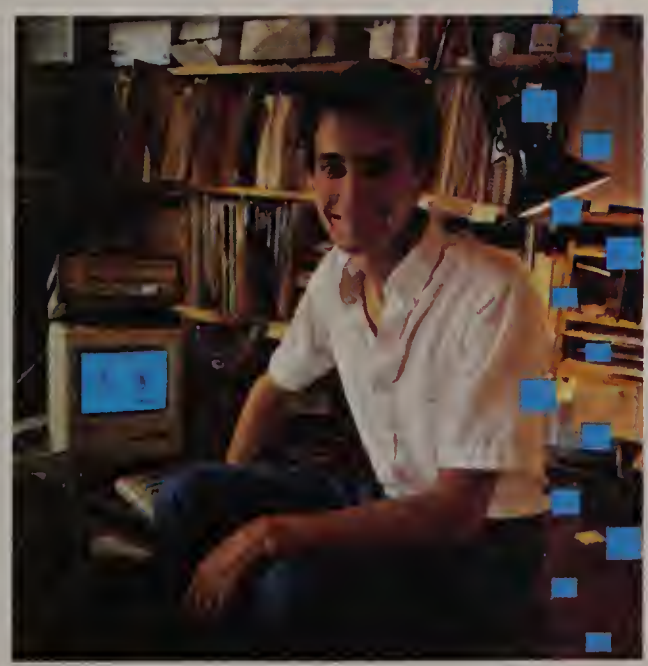
Macworld View

The Macintosh in the laboratory, Apple II to Mac conversions, CheapPaint, and more

Edited by Herschel Schmedick

I suspect that many of you have had strange or enlightening encounters with the Macintosh. Or perhaps you've heard of someone else's unique application of the Mac. Your contributions are welcome. Macworld *pays up to $50 for each item published. Send your contributions to* Macworld View, *555 De Haro St., San Francisco, CA 94107. I look forward to hearing from you.*



The inventor at home: Glenn Weinreb, creator of the MacADIOS lab-monitoring system, in his MIT dorm room.

Laboratory Mac

In a crowded room in the dilapidated dormitories of the Massachusetts Institute of Technology (MIT), a small box capable of turning the Macintosh into an oscilloscope is communicating with the Mac at 500,000 bits per second. Presiding over this dormitory-based laboratory is MIT student Glenn Weinreb—president of GW Instruments and inventor of MacADIOS (Macintosh Analog-Digital Input-Output System), a device that gives the Macintosh the ability to control and monitor laboratory experiments.

Weinreb explains that MacADIOS is designed to automate laboratory tasks. "Traditionally, a scientist who wanted to analyze the effects of metal fatigue, for example, would have to turn knobs to adjust controls, read data displayed on dials, sit down with a calculator to assess the results, and then manually plot the data into graphic form. With MacADIOS, this process can be done in seconds."

Weinreb, along with his collegiate associates, has also developed software that coordinates many of the laboratory tasks performed by MacADIOS. *MacADIOS Manager* is a sophisticated Mac program designed to help scientists gather, edit, analyze, display, store, and print data. In addition, Weinreb's company has developed a BASIC program that controls MacADIOS and performs high-level array manipulations to analyze data. Other BASIC routines can be used with MacADIOS to convert the Macintosh screen into a sonogram or a spectrum analyzer, as well as an oscilloscope.

As expected, developing and manufacturing the $2500 MacADIOS system requires financing. Weinreb and his colleagues have devised a clever way to raise capital. GW Instruments' technicians have been trudging through blizzards to perform 512K Macintosh upgrades for Cambridge and Boston residents. Weinreb says, "In the long run, we hope to be influential in making the Macintosh an efficient tool for engineers and scientists. For the time being I don't mind doing upgrades to finance MacADIOS. It keeps us in touch with the Cambridge Macintosh community, and that's rather nice."

—David Turin

MacSurf

Large waves are breaking on the shores of the CAD/CAM market. Riding the crest of these waves is *MacSurf* (Graphic Magic, P.O. Box 185, Cottesloe, 6011 Western Australia), a Macintosh program developed to aid engineers in the design of yachts and sailboards. The program drastically reduces the time and cost of designing a yacht. Within an hour you can complete a yacht design in *MacSurf* that would take four or five days and several erasers to draft by hand.

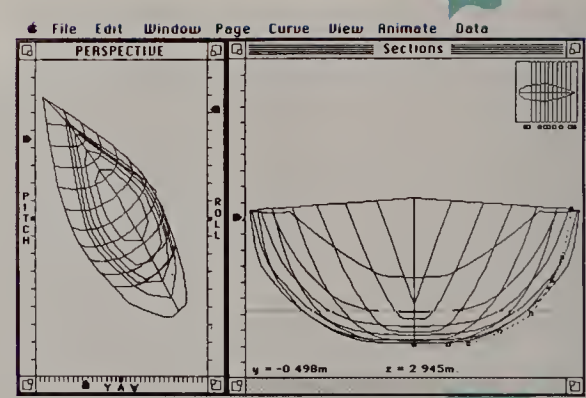
MacSurf displays four windows that show different aspects of a design: plan, profile, transverse sections, and perspective. Each window can be resized and moved around the screen, and the contents of any window can be zoomed in on or moved. The perspective view can be animated to provide smooth three-dimensional movement of the design. In addition, you can cut and paste *MacSurf* drawings into *MacDraw* or vice versa and print designs on large plotters.

In CAM terms, *MacSurf* is revolutionizing the production of foam-cored marine products, such as sailboards. *MacSurf*, linked to a styrofoam cutting device, is the first system that enables manufacturers to generate a finished foam shape from a computerized design.

The program is being used by some of the world's top yacht designers. Ben Lexcen, who designed the 1983 America's Cup winner, *Australia II*, is now using the Macintosh and *MacSurf* to design his yachts.

Of the future, Andrew Mason of Graphic Magic says, "*MacSurf* is intended for the design of marine hull shapes, but it can be used to design any bilaterally symmetrical object, such as an automobile or even a space shuttle." With its $1950 price tag, however, you probably won't want to buy the program to design paper airplanes or skateboards.

–David Turin



Cutaway and perspective views of a hull design created with MacSurf.

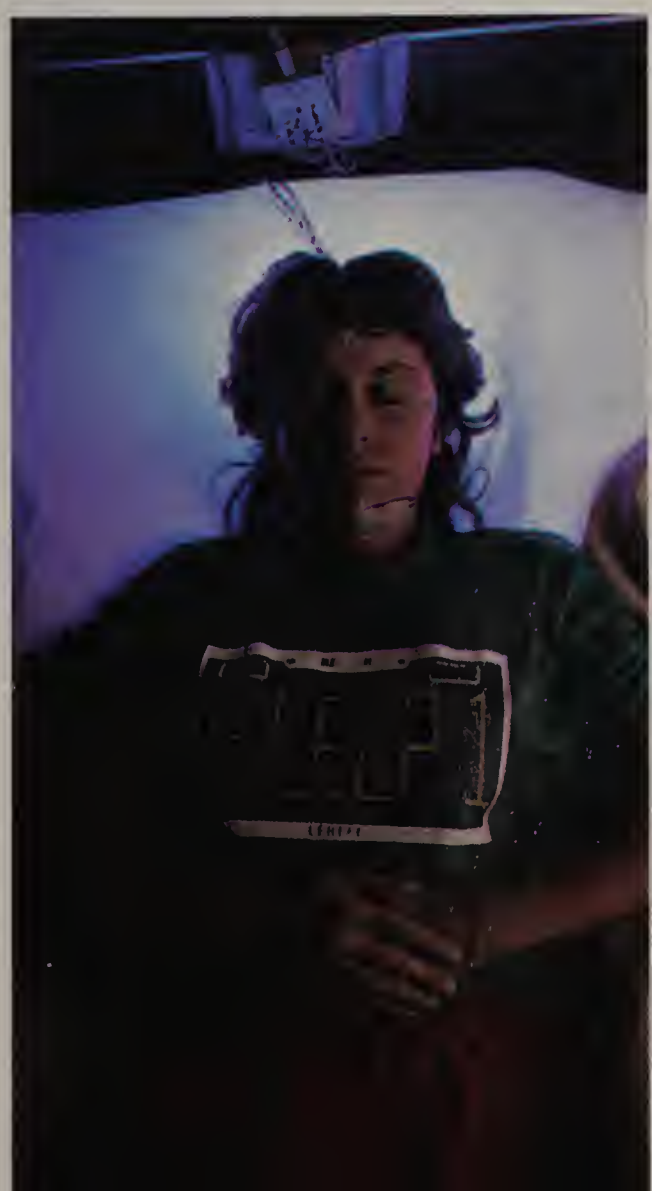
Be Quiet, Sleep Camp

For ten summers, Dr. Mary Carskadon of the Stanford Sleep Center has been running the Stanford Sleep Camp to study the effects of sleep deprivation in young adults. This year Carskadon added a new member to her staff–the Macintosh.

At the Sleep Camp, the sleeping patterns of six volunteers are completely controlled in an attempt to duplicate the sleeping patterns of college students, who often go for weeks without an 8-hour night of sleep. Twenty summer interns work in shifts to keep the volunteers awake 19 hours a day, testing them every 2 hours for sleepiness and connecting them to polygraphs each night to record their brain waves during sleep. Each 5-hour night of sleep produces 600 pages of output that needs to be interpreted by hand and then fed into a computer for analysis.

In previous years, data storage and analysis were done with five cumbersome FORTRAN programs on a PDP-11 minicomputer. Now Alan Liu, a Stanford senior in electrical engineering and a premed student, has written a program using Consulair C that executes all five programs in one run. Liu's program handles data entry, summary, comparisons, and plotting. In addition its output is an improvement over that of the FORTRAN programs.

"It's great," says Carskadon. "We can fit 200 nights of sleep onto one floppy disk. We avoid the data entry problems of the past, and the Macintosh is portable and easy to use." With the Macintosh working, now at least the computer programmer can get some sleep.–*Clay Andres*



While volunteers at the Stanford Sleep Camp nod off, the Macintosh works on, analyzing and reporting their brain waves. Camp researchers study the effects of sleep deprivation.

CheapPaint

MacroMind, the Chicago-based software company that created *MusicWorks, VideoWorks,* and Art Grabber with Body Shop, has added another desk accessory to its product line. CheapPaint, distributed by Hayden Software, gives you an instant graphics pad for the creation of original artwork, without making you quit your current application. The program, which was originally designed as the *VideoWorks* drawing window, utilizes most of *MacPaint*'s tools, such as the pencil, the paintbrush, the paint bucket, FatBits, and a text mode. Although this desk accessory has been enhanced by the addition of certain functions, such as rotate, it is still "cheap" in the sense that it takes up only 15K on a disk. CheapPaint works with some applications, such as *MacWrite,* on a 128K Macintosh, but for most applications you'll need a 512K Mac.–*Nicholas Lavroff*

Apple II to Mac Conversions

Abaton Technology Corporation in Santa Monica, California, has developed a product that may lead to a rapid increase in the number of available Macintosh programs. *Abaton Transform* allows people to have Apple II programs running on a Macintosh in less than 2 hours. According to Abaton director of operations Byron Wagner, "We are taking what has historically been a nine-month job that cost from $8000 to $15,000 and are reducing it to the level of taking laundry to the cleaners. In fact, a program conversion is so easy it could be performed by the average seventh grader."

The $1995 *Abaton Transform* development package consists of a board for the Apple II, a cable, a 5¼-inch disk, a 3½-inch disk, and brief documentation. The only other tools required are a Macintosh and an Apple II.

The conversion process doesn't change Apple II programs into Macintosh programs with pull-down menus and windows with scroll bars. The programs look and behave the same as on an Apple II, but they are coded in the Mac's 68000 machine language. Converted programs show up on the desktop with the Mac's generic application icon.

Some developers may simply choose to convert their programs, especially games, and sell them for $20 or less. But most people won't be satisfied with running Apple II products on a Mac without taking advantage of the Mac's superior graphics capabilities, screen resolution, and user interface. Aiming to please, Abaton plans to offer a source code generator, which produces an assembly language source code file that can be edited and modified to enhance a program.

Abaton's conversion process provides incentive for Apple II program developers to adapt their software to the technology offered by the Macintosh. "Because developers can leapfrog the months of drudgery spent rewriting a program, they can devote more energy to the creative aspects of programming and get the product to market in less time," Wagner explains. He notes that the process doesn't work with copy-protected software, and that the product is intended for use by developers who have legal rights to their software.

Some of the thousands of Apple II educational, business, and entertainment programs may get the Abaton treatment soon. For more information contact Abaton Technology, 1526 Cloverfield Blvd., Santa Monica, CA 90404, 818/905-9399.

Macworld's Top 10 Best-Selling Business Software

Months on chart	Last month	This month	Product
1	3	1	*Jazz*, Lotus Development
5	2	2	*Microsoft Word*, Microsoft
5	1	3	*Microsoft Multiplan*, Microsoft
4	4	4	*Microsoft File*, Microsoft
5	6	5	*Microsoft Chart*, Microsoft
5	8	6	*Dollars and Sense*, Monogram
2	5	7	*MacDraw*, Apple Computer
5	9	8	*MacProject*, Apple Computer
0	—	9	*Back to Basics*, Peachtree
5	10	10	*pfs:file*, Software Publishing

Source: InfoCorp

The Macintosh Revealed

A computer book that sells 25,000 copies is considered a success. One that sells 50,000 is a rousing success, and 80,000 copies sold signals a true blockbuster. Who would have thought that Stephen Chernicoff's *Macintosh Revealed, Volume One: Unlocking the Toolbox* (Hayden Book Company, 1985) would sell more than 80,000 copies in six months? The technical book explaining the ROM routines of the Macintosh Toolbox has been on the computer-book best-seller lists of the major bookstore chains, including B. Dalton. *Macintosh Revealed, Volume Two: Programming with the Toolbox* is following up on the success of the first volume.

Chernicoff, who wrote parts of *Inside Macintosh,* attributes the popularity of his books to the programming community's interest in the internal workings of the Macintosh. "People are hungry for information," he says. "*Macintosh Revealed* is the right book at the right time."

Puppy Love

Can you teach a new dog old tricks? *Puppy Love,* a new Macintosh game from Tom Snyder Productions, features a junkyard dog named Midnight. Through rewards and punishments you train Midnight to follow your commands and to perform acrobatic tricks. Synthesized voice and whistle commands are used to simulate a real human-pet relationship. You keep track of Midnight's responses to specific whistle sounds in an on-line journal.

Tom Snyder characterizes *Puppy Love* as a way to familiarize children with the learning process. Snyder says, "I wanted to create a program that kids could relate to on an emotional level, that was not hung up on words. Even adults will feel proud when they figure out how to get Midnight to do three back flips in a row and jump off the screen."

Teaching Midnight to play dead or roll over helps children to develop their reasoning and comprehension skills, as well as to experience the challenge—without the mess—of training a puppy.—*David Turin* □

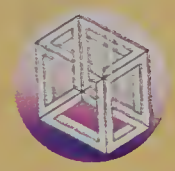
Miles Computing Entertainment Software. The Promise Fulfilled.

When the Macintosh first came out, everyone looked at it and said, "Wow, wait 'till the gaming wizards get ahold of this baby..." And some of them did. But some of the "quick and dirty" products that have appeared have left some entertainment software for the Mac a little disappointing.

Here at **Miles Computing**, software designers who simply will not put up with second best, or half-baked concepts, have delivered entertainment products of such intensity of effort and such depth that our designers say "Wow, wait 'till people get ahold of *this*..."

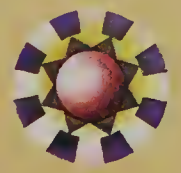
MacAttack! was the first, an amazing best-selling programming feat. It's a 3-dimensional tank battle zone simulation where you defend a city in your radar-equipped Sherman Tank. You must survive by out-manuevering conventional and heat-seeking missiles coming from your opponents who can only be eliminated by accurate shooting on your part. Deadly tanks and planes roam about in this unique game with three levels.

Harrier Strike Mission is follow-up to MacAttack! in a tour-de-force of Assembly language utilizing sensational 3-D graphics. This flight combat simulator features the famous Harrier Jump Jet, a fighter aircraft which can maneuver like a helicopter but has all the punch of the latest in modern jet armament. You are pitted against an enemy-occupied island firing heat-seekers, not to mention fighter aircraft in mid-air combat. You must take off from an aircraft carrier, take out the command post and fuel depot on the island and return to your ship. With two skill levels and your choice of day or night mission, mouse or joystick controls, it's the ultimate 3-D flight combat simulator.



Then there's **Fusillade**. You're the last person stuck on Planet Fusill, and must defend a city from power-hungry kamakazee looters in a fast-action shoot-out which escalates at dizzying speed as wave after wave attacks your position in over 30 knuckle-whitening levels. Mouse, keyboard or joystick controlled.

If real trouble is what you're looking for, **MacWars** has it. Miles Computing just can't keep away from 3-D, and this one has a black planet strewn with a deadly obstacle course of surface and sky targets through which you fly your laser cannon-equipped and shielded space ship. On the way to the enemy's planet-sized space station you must survive waves of enemy space paraphernalia, and only your mouse or joystick stand between you and destruction as the waves keep coming, and coming, making things "rather difficult indeed" for you.



For those who want to exercise brain muscles, we have **Overlords**. The object is galactic domination, with power struggles. Struggles against whom? Well, up to *32* players, that's who! Players can be either people or the Macintosh itself, or can even be linked up via Apple Computer's Apple Talk network, the very first game to do this. You can have multiple players on one computer, or link up to other computers, each player with its own strategy and personality. You can use the ships that come with it, over a dozen, or design your own, and by zooming in and out over the Galaxy, set out for high adventure.

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- One disk drive.

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Get Info

Macworld's tutor answers questions about disk-based MacWrite, display-sized pictures, and Imagewriter graphics

Lon Poole

More than a few people have written to complain about *MacWrite* 4.5, especially people who use 128K Macs or write long paragraphs. This month I respond to both groups. I also list the features of the two official upgrades to *MacWrite*. Someone who is learning *MacPaint* asks about the Grid command, and another *MacPaint* user wonders if it's possible to create drawings larger than *MacPaint*'s 8- by 10-inch limit. A programmer using Microsoft BASIC (MBASIC) wants to incorporate drawings created with *MacPaint* into his program. Another programmer wants to create graphics with an MBASIC program and print them directly on an Imagewriter. And a Pascal programmer wants to create a self-contained program that doesn't require the Macintosh Pascal interpreter.

MacWrite 4.5 Style and Font

Q. I use *MacWrite* 4.5 on a 128K Macintosh. When I try to change the font or style of text, even in a small document, I get the obnoxious double beep and the message "Memory almost full. This operation can't be undone." Why does *MacWrite* run out of memory? Is there any way to make font and style changes without this message occurring?
Gladys Fletcher
Baton Rouge, Louisiana

A. Apparently there's no way around the flaw you describe. It's ironic that an upgrade designed to make life better for people with 128K Macs actually makes life worse. I recommend that 128K Mac users stick with *MacWrite* 2.2 unless they absolutely must have 4.5's ability to handle longer documents.

Paragraph Too Long

Q. When I convert documents created with *MacWrite* 2.2 to *MacWrite* 4.5, the following message often appears: "This document contains a text paragraph that is too large to load. Shorten it, and try again." I was unable to shorten the offending paragraph, but since I had retained a copy of *MacWrite* version 2.2, the problem was not major. However, the update information provided with *MacWrite* 4.5 clearly implies that there is no reason to retain copies of earlier versions of *MacWrite*, and I imagine that some Macintosh owners would take Apple at its word on this. The moral is obvious.
Robert C. Mainfort, Jr.
Pinson, Tennessee

A. It certainly does make sense to keep an old version of a program around until you've had a chance to thoroughly exercise the new version. Incidentally, the "paragraph too large" message occurs if any paragraph is longer than 3000 characters, which is about one page of single-spaced 12-point text. A new paragraph starts after a return character or a formatting ruler.

MacWrite Version Differences

Q. I know there have been several versions of *MacWrite*. Could you explain the improvements or changes in the different versions?
James R. Wilson
Ormond Beach, Florida

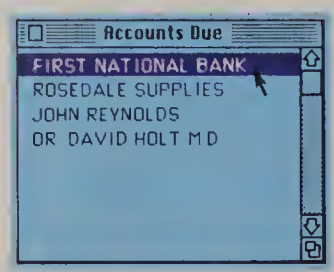
A. To date, Apple has released three official versions of *MacWrite*. Version 1.0 was the first version shipped. It was supplanted by version 2.2 in May 1984. Version 2.2 featured Geneva 12 instead of New York 12 as the standard text font. A 10-point option was added to

(continues on page 50)

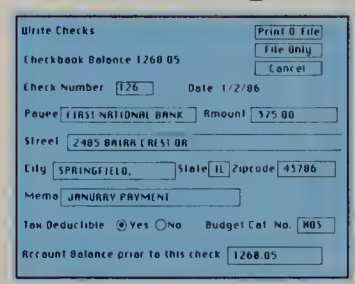
NEW!

10.7 SECONDS

To print a check with Orion Checkwriter!



#1. Automatically alerts you to due accounts.



#2. One click records, classifies and deducts the check amount.

#3. The printed check is ready for signature and mailing in its own two- window envelope.

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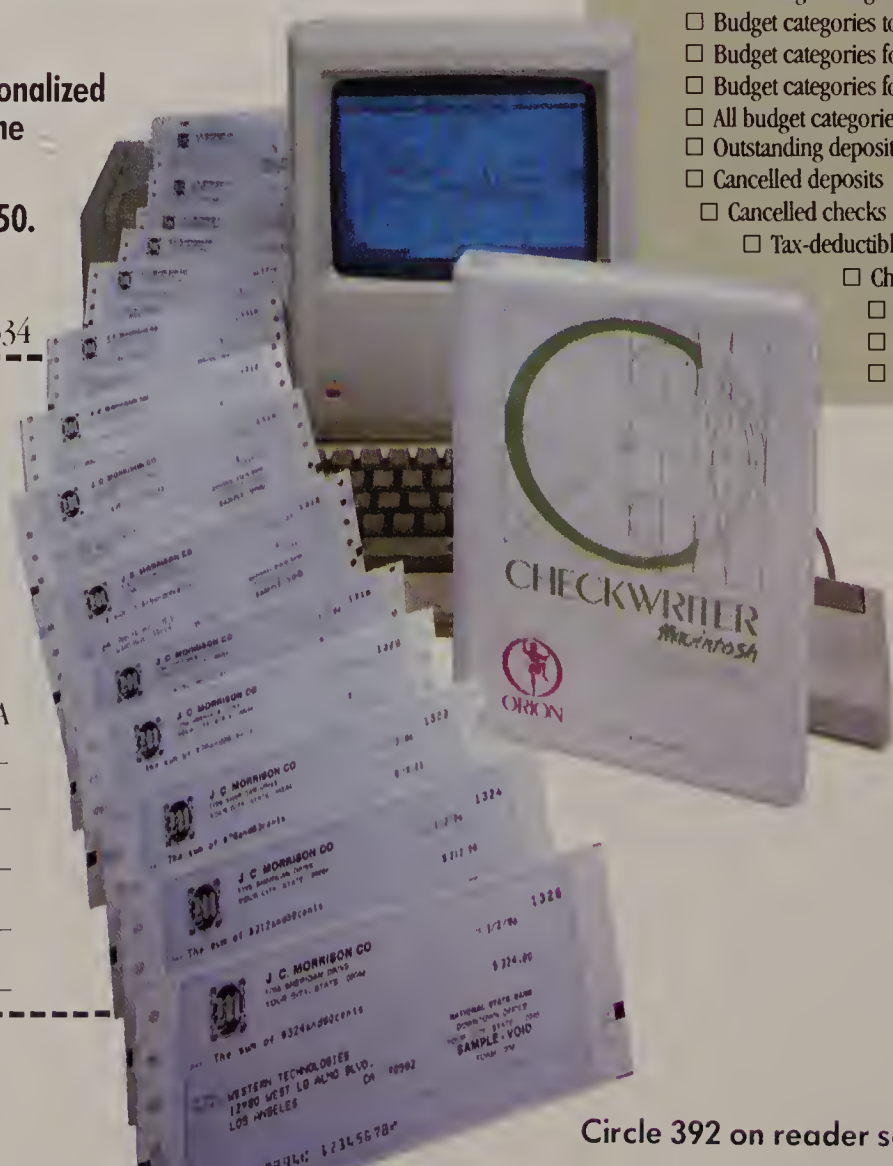

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(continued from page 47)

the Style menu, as were superscript and subscript styles. The keyboard shortcuts for the style options were changed so you could turn an option on or off. The Show and Hide Header and Footer commands in the Format menu were replaced with Open, Display, and Remove Header and Footer commands.

Prerelease versions of the third version of *MacWrite*–versions 3.0 to 4.2–proliferated throughout the Macintosh community from December 1984 until May 1985, when version 4.5 was officially released. This version, dubbed "disk-based *MacWrite*," does not keep an entire document in memory, as earlier versions did. Instead it keeps the document on disk and brings into memory only the part you're actually working with. That means your documents can be larger. Also, new commands in version 4.5's Format menu allow you to align selected text without inserting a formatting ruler. Formatting rulers now have a box you can check to force vertical spacing of six lines per inch. The Search menu now includes Find Next and Goto Page # commands, and the current page number appears in the scroll box.

Oversize Pictures with MacDraw

Q. I created a *MacPaint* drawing of a paddle wheeler. The picture became so large that it takes up two *MacPaint* documents. I don't want to shrink the drawing. Is there any way to combine the two documents into one drawing?
Daryl Dubas
Pittsburgh, Pennsylvania

A. Many individual *MacPaint* documents can be copied and pasted into one *MacDraw* document to create a single large picture. *MacDraw* can print the large picture full-size or half-size, using as many sheets of paper as necessary. You tape together the sheets of paper to form the whole drawing.

Each *MacPaint* picture must be transferred to the composite *MacDraw* document via the Clipboard. *MacPaint*'s small drawing window forces you to chop each picture into as many as six pieces. Copying and pasting each piece separately takes forever unless you use the Switcher to switch between *MacPaint* and *MacDraw*. You can also copy all the pieces from the *MacPaint* picture to the Scrapbook. You then copy the Scrapbook file, which is inside the System Folder, from the *MacPaint* disk to the *MacDraw* disk and copy and paste the pieces from the Scrapbook to the *MacDraw* document.

Copying *MacPaint* pictures to *MacDraw* is much easier with one of two desk accessories: QuickPaint ($49.95 from Enterset, 800/621-0851 ext. 305, 415/543-7644 in California) or Art Grabber ($49.95 from Hayden Software, 800/343-1218, 617/937-0200 in Massachusetts). Both allow you to copy fairly large pieces of a *MacPaint* document without quitting *MacDraw* or any other application program. To most efficiently copy full-width or full-height *MacPaint* pictures–up to 8 by 10 inches–use the *Paint Cutter* program (part of *Accessory Pak 1*, $39.95 from Silicon Beach Software, 619/695-6956), preferably with the Switcher.

(continues on page 55)

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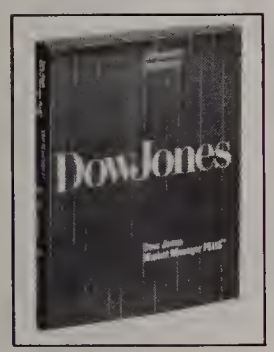

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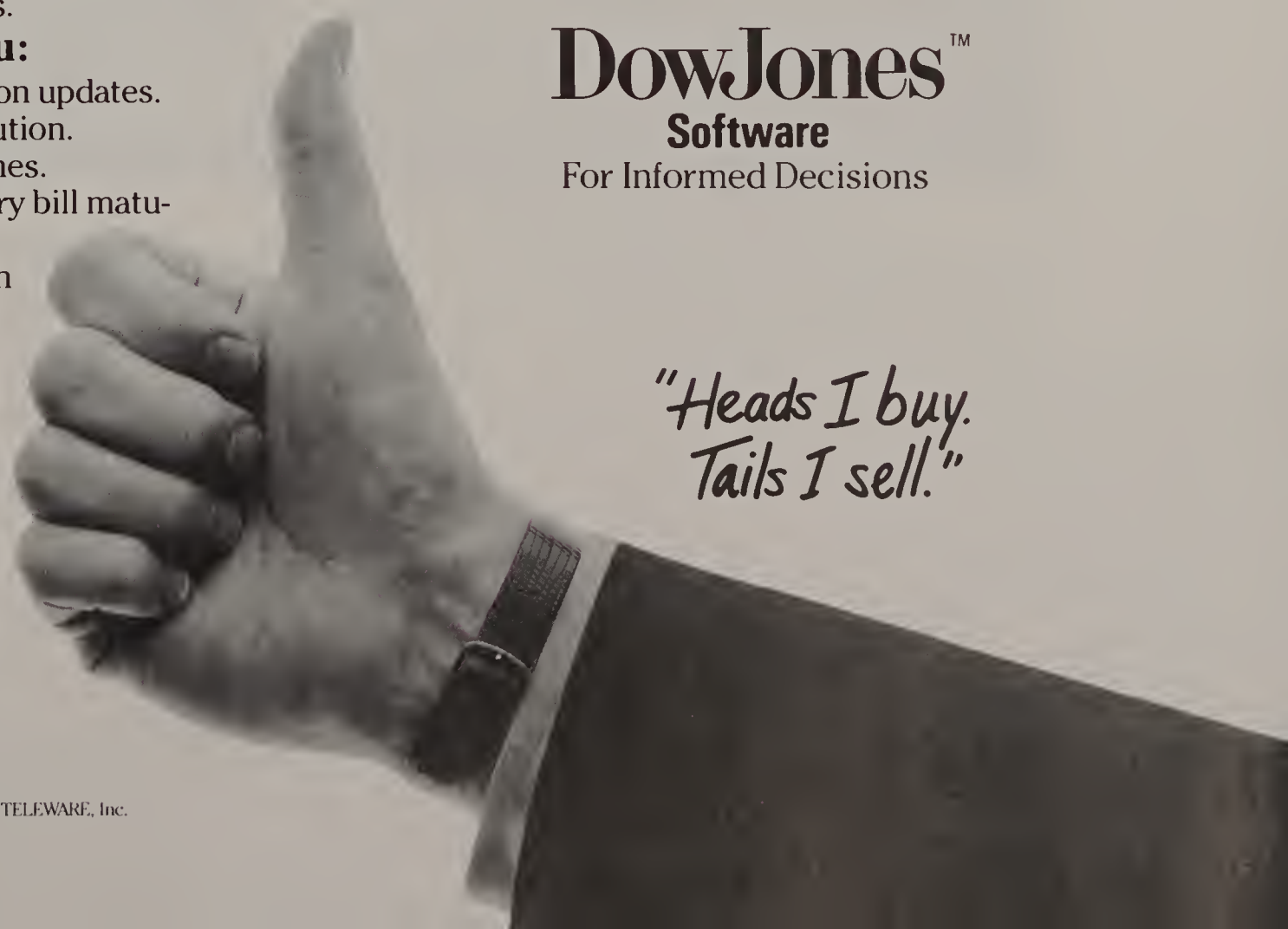

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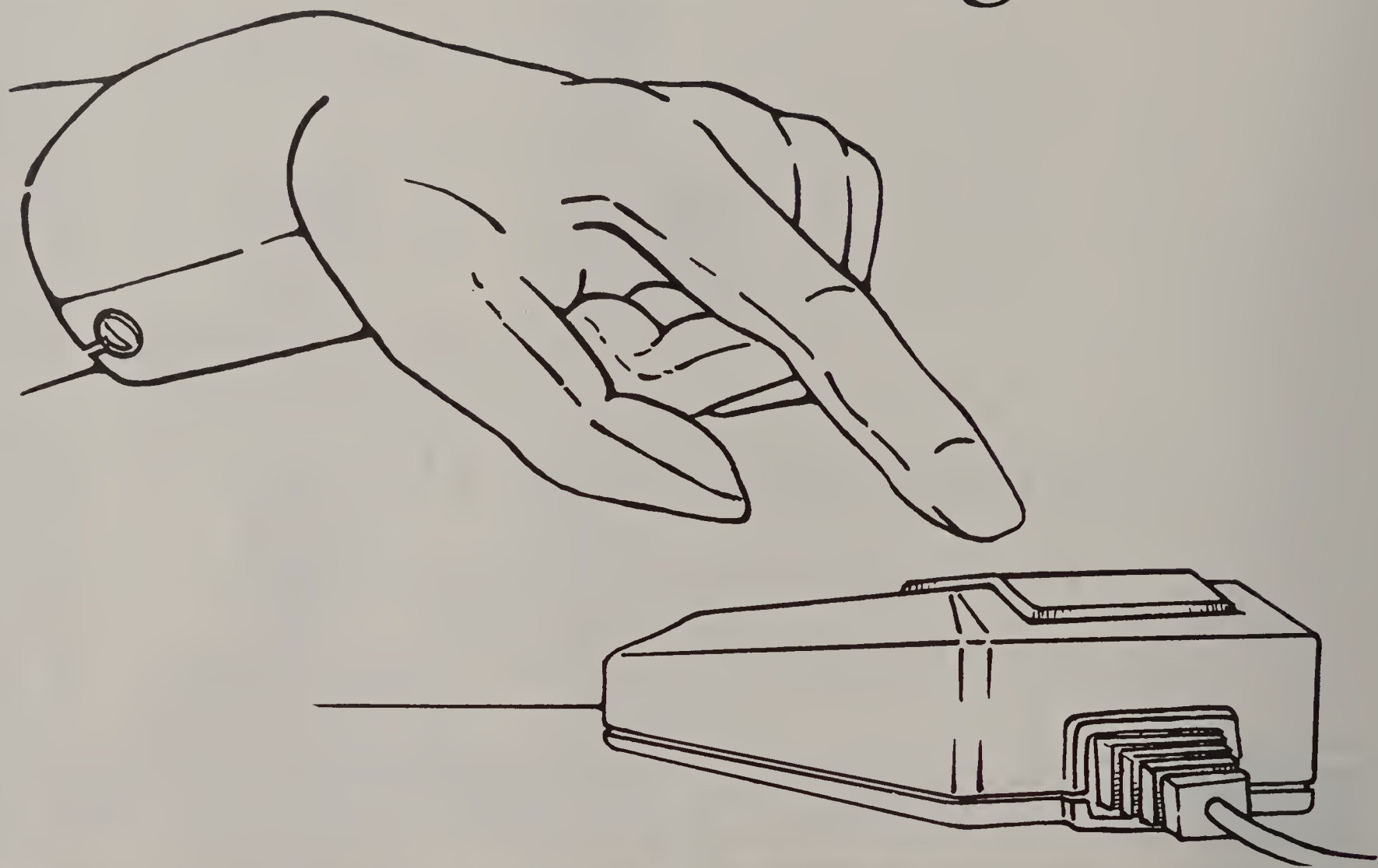

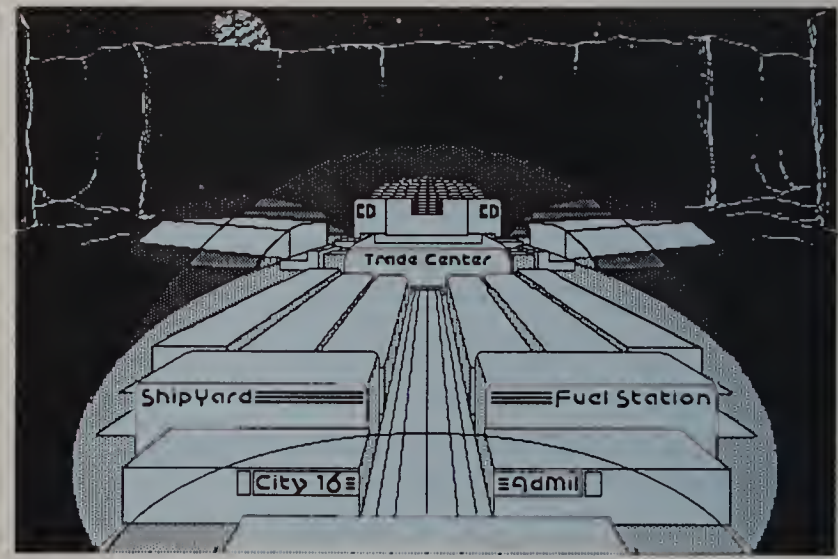

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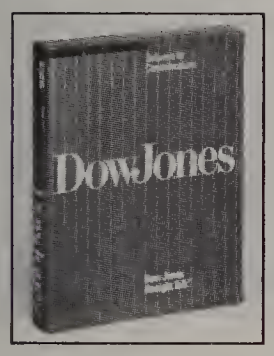

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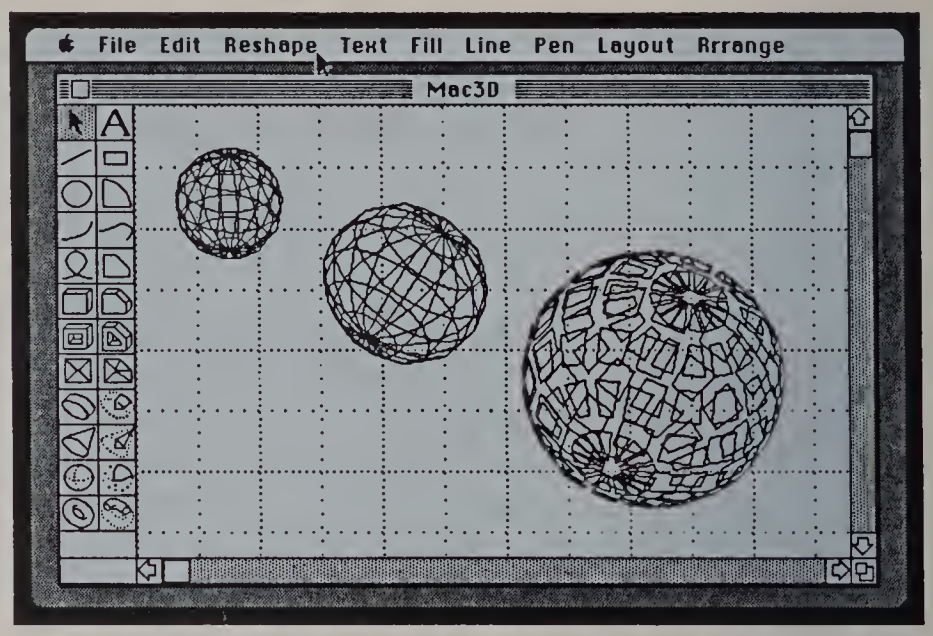
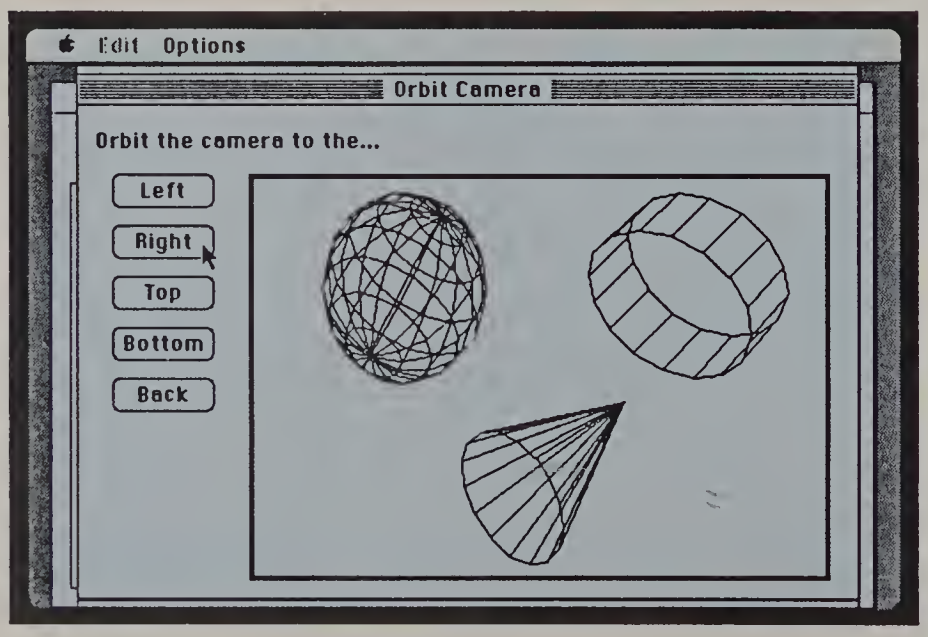


- **Advanced tool palette.** Select Text, Freehand Drawing, or shapes like Rectangles, Ellipses (includes circles), Polygons, Pyramids, Polygonal Prisms, Polygonal Pyramids, Ellipsoids, Cones, Cubes, Cylinders, and Tori (doughnuts).



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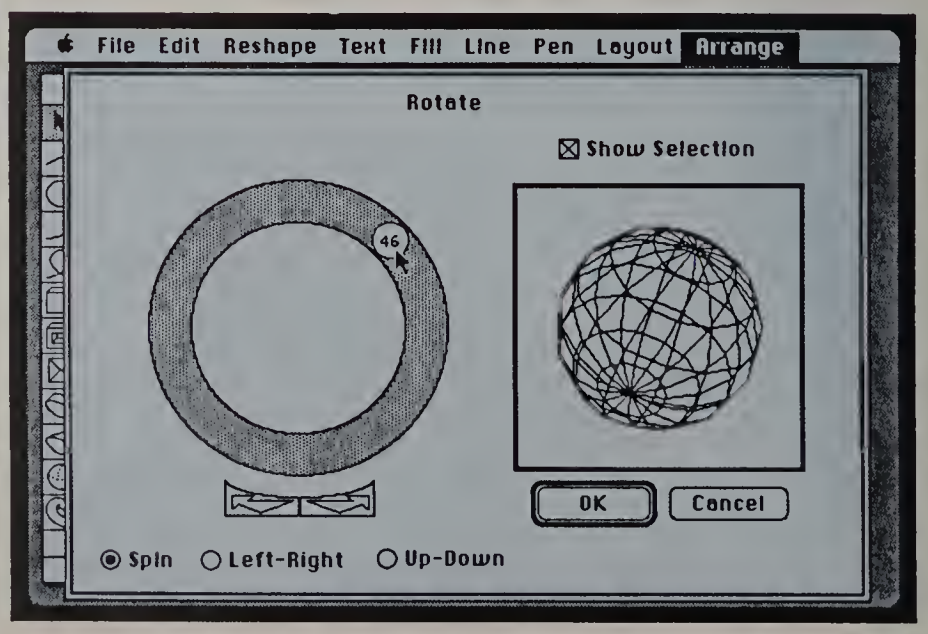

Mac3D requires a 512K Apple® Macintosh™ and an external disk drive.

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(continued from page 50)

Paste the *MacPaint* pictures into *MacDraw* beginning with the top left section of the composite picture. Work your way toward the bottom left corner of the *MacDraw* document. *MacDraw* initially positions all pasted objects in the middle of the drawing window, but you can move them so they align properly. Before attempting to align objects, choose Turn Grid Off from the Layout menu, so the objects will not be forced to move in ⅛-inch increments.

Use the scroll bars to bring additional *MacDraw* document space into view in the drawing window. If you scroll to the right or bottom edge of the document and still need more space, choose Drawing Size from the Layout menu to enlarge the document.

To print the composite drawing, choose Page Setup from the File menu. Select No Breaks between Pages. Check the appropriate paper size and pick a reduction factor, either none or 50 percent. The composite drawing may fit better if you select Wide orientation instead of the normal Tall Adjusted, depending on the drawing's shape. To check the fit, choose Reduce to Fit from the Layout menu, which gives you an overview of the whole document at once. To reenlarge the document to its normal size, choose Normal Size from the Layout menu.

Printing a large *MacDraw* document requires free space on the *MacDraw* disk for a temporary print file. The message "The print command was not completed" usually means the *MacDraw* disk has too little work space. Try printing one or two pages at a time. You can get more free space by making *MacDraw* the startup application. To do so, select *MacDraw* and choose Set Startup from the Finder's Special menu. You can also free memory by removing the Finder–drag it from the System Folder to the Trash–or by copying *MacDraw* to a disk that doesn't contain a System Folder.

MacPaint to MBASIC 2.0

Q. How can I transfer a *MacPaint* picture into a Microsoft BASIC version 2.0 program?
Peter Howard
Emmaus, Pennsylvania

A. An MBASIC program can import a *MacPaint* picture that has been copied to the Clipboard. The following program illustrates how to do this:

```
OPEN "CLIP:PICTURE" FOR INPUT AS 1
IMAGE$$EQINPUT$(LOF(1),1)
PICTURE,IMAGE$
CLOSE 1
```

First, the OPEN command opens the Clipboard–the MBASIC device named CLIP:–as an input file for pictures. Next, the INPUT$ function copies the picture from the Clipboard to the string variable IMAGE$. Finally, the PICTURE command displays the picture from the string variable in the upper-left corner of the output window. This program is a corrected version of the one that appears on page 58 of the MBASIC 2.0 documentation.

Imagewriter Graphics from MBASIC

Q. Could you please suggest a method for printing graphics on the Imagewriter with standard MBASIC commands?
Robert A. Mueller
Wauwatosa, Wisconsin

(continues on page 57)

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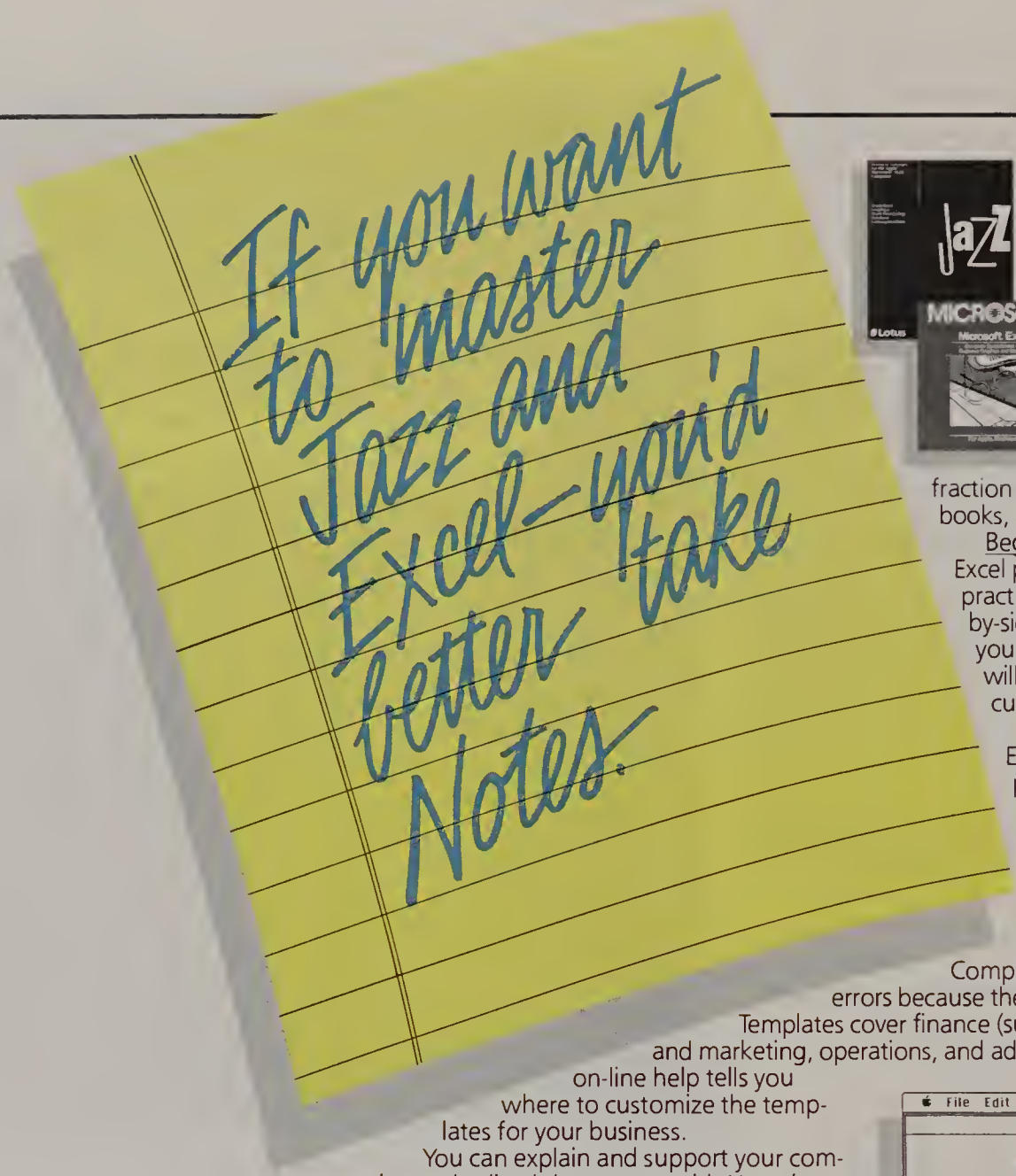

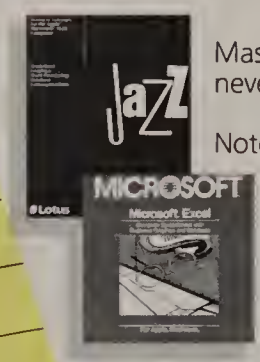

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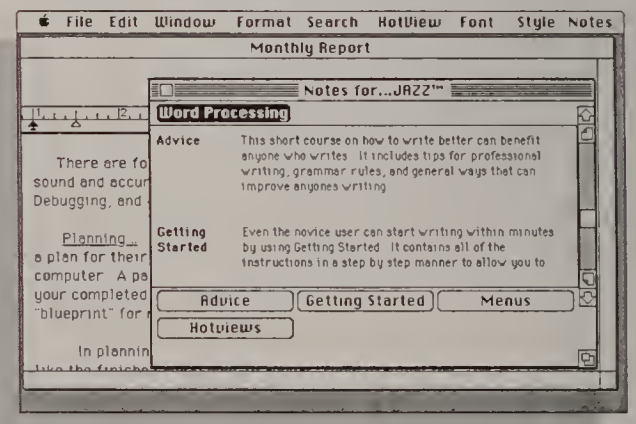

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Circle 428 on reader service card

(continued from page 55)

A. The WINDOW OUTPUT command can divert the graphics drawn by commands such as CIRCLE, PSET, PICTURE, CALL PENSIZE, CALL LINETO, and CALL TEXTFONT to the printer. The program "Sine Curve" prints the graph of a sine curve on the Imagewriter.

In MBASIC the device name for the printer is LPT1:. If you append the PROMPT option to the device name, MBASIC displays the standard Page Setup and Print dialog boxes so you can choose paper size, orientation, pagination, reduction, print quality, page range, number of copies, and paper feed (see "Sine Curve"). However, the page range choice has no effect. Only the first page is printed regardless of the range you choose.

Stand-Alone Pascal Programs

Q. I write programs using Macintosh Pascal. However, I dislike having to start Pascal and then open a program. Can I run programs directly? How can I create a program that doesn't require the Pascal interpreter disk?
Albert E. Fowerbaugh
Lakewood, Ohio

A. You can open a Pascal program icon directly using the Finder, which automatically opens the Pascal interpreter first. But once the program is open, you must run it manually by choosing Go from the Run menu. The Pascal interpreter disk must be inserted in a drive.

(continues on page 59)

```
'Program prints the graph of a sine curve

SCALE=100 'Size factor
OFFSET=300 'Starting point

OPEN "LPT1:PROMPT" FOR OUTPUT AS #1 'Open printer
WINDOW OUTPUT #1 'Divert output to printer

CALL MOVETO (OFFSET,0) 'Start at top center of page

'Draw graph
FOR Y=0 TO 2*3.1416 STEP .1
CALL LINETO (SIN(Y)*SCALE+OFFSET,Y*SCALE)
NEXT Y
END
```

Sine Curve
Printing graphics from Microsoft BASIC on the Imagewriter printer requires the printer device, LPT1:, to be opened as an output file. The Page Setup and Print dialog boxes are displayed prior to printing if you include the PROMPT option.

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Only you and your mouse can defend your city and save its people.

5:35 a.m.

Your city is under attack from hostile forces. Hot air balloons have started releasing a deadly shower of bombs in an attempt to break your city's protective shield. Dive bombers are zooming in for a full scale attack.

The battle has just begun...

9:08 a.m.

Smart bombs come hurtling through the air...You fire and miss, fire and miss. What's happening?! You've never seen anything like them...how do you destroy **them** before they destroy **you?** OH, NO! You're losing your high-energy shield!

11:23 a.m.

Armed paratroopers are dropping from the skies in droves. You begin to realize that defending your city is no easy mission. You fire from one of your three MacCommand bases. ZapZapZap! Got one, got two...But, they're coming too fast. Paratroopers have penetrated your city...

4:52 p.m.

They've destroyed your main missile base. They've detonated city hall! Ambulances are on their way to collect your wounded. What a disaster!

But there's more to come...

9:47 p.m.

NOT THE DREADED SPINNERS! With spinners zinging through the air, firing smart bombs randomly in rapid succession, how much longer can you hold the enemy back?

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Introducing MacCommand

For more information, or the location of your nearest MacCommand dealer, please call or write Creighton Development, Inc.

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Circle 95 on reader service card

(continued from page 57)

To write a stand-alone program, you need a Pascal compiler, such as MacAdvantage UCSD Pascal ($295 from SofTech Microsystems, 800/451-8080, 800/824-7867 in California). You write a Pascal program with an editor, such as *MacWrite,* and use the MacAdvantage compiler to translate the Pascal program statements into an intermediate code. A separate program called a run-time module executes the intermediate code when you run the program. Since the run-time module is not copy protected, you can put a copy on each of your program disks. However, if you want to sell or give a program to anyone else, you need a license to distribute copies of the run-time module ($500 from SofTech Microsystems for one year of unlimited distribution). The MacAdvantage system uses the Mac operating system and offers access to most of the ROM routines but is not compatible with the p-System Pascal that runs on the IBM PC.

MacPaint's Grid Command

Q. What does the Grid command in *MacPaint*'s Goodies menu do?
Ahmed Nasr Ghanem
Eastbourne, East Sussex
United Kingdom

A. Choosing Grid from *MacPaint*'s Goodies menu imposes an invisible grid on the drawing window. Pointer movement is constrained to the grid lines, as if the drawing window were a piece of graph paper and the pointer could only move on the lines or jump from line to line. The grid feature affects only the following operations:

- Selecting, dragging, and duplicating with the marquee.
- Selecting a text insertion point with the I-beam pointer.
- Drawing straight lines.
- Drawing rectangles, rounded rectangles, ovals, and polygons (but not free-form shapes).
- Dragging and duplicating an object selected by the lasso. The lasso is only affected by the grid immediately after you paste something else that was selected by the lasso.

The invisible grid lines are eight dots apart, so the pointer moves eight dots at a time instead of one, making it easy to position the parts of a drawing. The grid is especially handy for working with patterns, which are defined by eight- by eight-dot squares. *MacPaint* fills an area by laying patterned squares end-to-end like floor tiles. The grid feature constrains movement of a selection to the same eight-dot intervals that the pattern squares are based on. If the grid feature is on when you drag patterned objects, overlapping patterns always mesh. If you drag patterned objects when the grid feature is inactive, overlapping patterns usually end up offset from each other.

The grid feature is also useful for stretching a patterned object. You select one

(continues on page 62)

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(continued from page 59)

end of the object, press ⌘-Shift-Option, and drag. Without the grid feature, the pattern is disrupted. With the grid on, the pattern is maintained (see "Pattern Stretch").

Get Info *answers questions about the Macintosh and how it works. When you need advice about using the Mac, drop me a line. I cannot respond to all letters, but I will answer the most representative questions. Send your questions about the Macintosh, Macintosh software, and Macintosh programming to* Get Info, Macworld, *555 De Haro St., San Francisco, CA 94107. Send electronic mail to CompuServe 70370,702 or The Source BCW440. All published submissions become the property of* Macworld.

Lon Poole is a Contributing Editor of Macworld. □

Pattern Stretch
To stretch a patterned object in MacPaint, *select one end of the object, press ⌘-Option-Shift, and drag. With the grid active, the pattern's uniformity is retained; otherwise, the pattern is distorted.*

The C for the Macintosh

"Library handling is very flexible...documentation is excellent... the shell a pleasure to work in...blows away the competition for pure compile speed...an excellent effort."

COMPUTER LANGUAGES, 4/85

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The following sieve benchmark timings are reprinted with permissions of Computer Languages, 131 Townsend Sr., San Francisco, Ca 94107 from a Macintosh review that appeared in the April, 1985 issue:

compiler	compile/link	run	size
Manx Aztec	49	7	13,274
Megamax	114	7	13,816
Softworks	201	9	46,914
consulair	152	10	17,654
Hippo 2	102	13	30,648

The following sieve benchmark timings are reprinted with permission of Macworld, 555 De Harro St., San Francisco, CA 94107, from the May, 1985 issue from "Mac Wins By a Length" in the Open Window column.

Language	Run Time
Aztec C 1.06C	6.55
McFORTH 2.0	20.01
Modula-II	71.60
MBASIC 2.00	1170.00
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Sieve timings for Manx Aztec C68k 1.06g:

with register variables 3.37 secs 5,007 bytes
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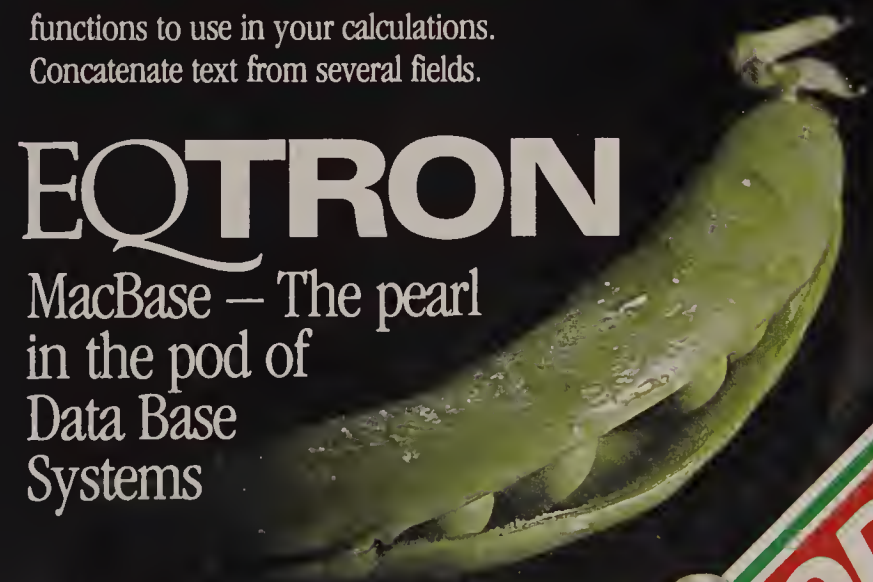

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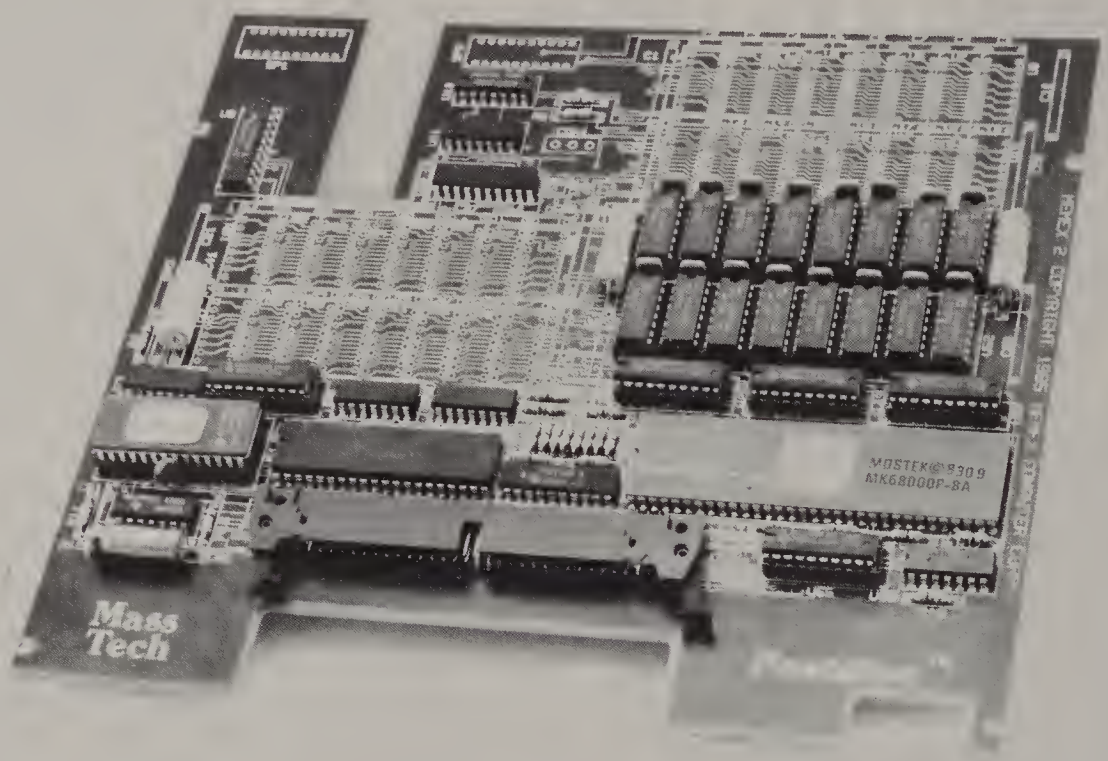

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Take the Macro Shortcut

Danny Goodman

Macros are a hot topic these days, especially in connection with Microsoft's *Excel,* which has them, and Lotus's *Jazz,* which currently doesn't include them. What are macros, and what do they do for a spreadsheet program?

The term *macro* is short for *macro-instruction.* A macroinstruction is a single command that takes the place of many. For example, the first time you direct a friend to your house, you furnish a series of detailed instructions like "turn left at the light, go straight three blocks, and make a right at the stop sign." The next time, however, you tell your friend, "Come to my house," which is a

macro, or shortcut, that causes your friend to repeat the steps you supplied earlier. The macro can later become part of an even larger macro. "Pick me up on your way to the game" contains the implied macro, "Come to my house."

In *Excel,* macros perform similar shortcuts. One command from a menu or the keyboard triggers the execution of a long series of planned actions–actions that affect calculations, the size and location of windows, the creation of charts and databases, and more. In fact, an *Excel* macro can carry out virtually any operation you do with the keyboard and the mouse.

Because *Excel*'s macros automate the program's actions, the macros can perform tedious tasks for you. One example is the job of displaying the bottom-line figure of a large worksheet while you play "what if" with values elsewhere on the sheet–a task that involves opening, resizing, and scrolling windows.

The Planning Process

Since macros mimic manual operations, the first step in creating one is to note the operations you would perform without the macro. In the case of viewing the bottom-line figure, the process involves six steps:

- Resize the main window to allow room below it for a second, small window for displaying the bottom-line numbers.
- Open a second window to the active worksheet.
- Resize the new window, making it approximately two rows tall.
- Move the small window to the bottom of the screen.
- Scroll the small window to view the cell containing the bottom-line figure.
- Reactivate the main worksheet window so you can start plugging in values and work your way to the desired bottom-line figure.

After you note the steps to include in a macro, you're ready to create the macro. If you were creating a macro with Lotus's *1-2-3,* the IBM PC program that made spreadsheet macros popular, you'd be rifling through the manual right now, searching for the right commands to type. *Excel,* however, provides a simple macro-creation method that makes learning a macro programming language unnecessary. It's called the *macro recorder,* and it works like a tape recorder, taking down for future playback every mouse click, every menu selection, and every keystroke.

Filling the Blank Tape

To use *Excel*'s macro recorder, first open a new *macro sheet*–a worksheet for writing and storing macros–by choosing New from the File menu and clicking on the Macro Sheet button. Next, tell *Excel* where to store the macro commands by selecting a column on the macro sheet and choosing Set Recorder from the Macro menu. You select a column by clicking its heading.

When you're rehearsed and ready to record, choose Start Recorder from the Macro menu. From that instant, *Excel* automatically converts every action into macro commands, which appear in the macro sheet column you selected. Because *Excel* records every move, take your time and think about each action. To stop the macro recorder, choose Stop Recorder from the Macro menu; *Excel* inserts the required ending formula, =RETURN(), into the macro.

Before creating an elaborate macro, you may want to experiment with the macro recorder to become familiar with how it operates. A good way to learn is to open a new *Excel* worksheet and a macro sheet and position both windows side by side (see Figure 1). Next, start the macro recorder using the steps I just de-

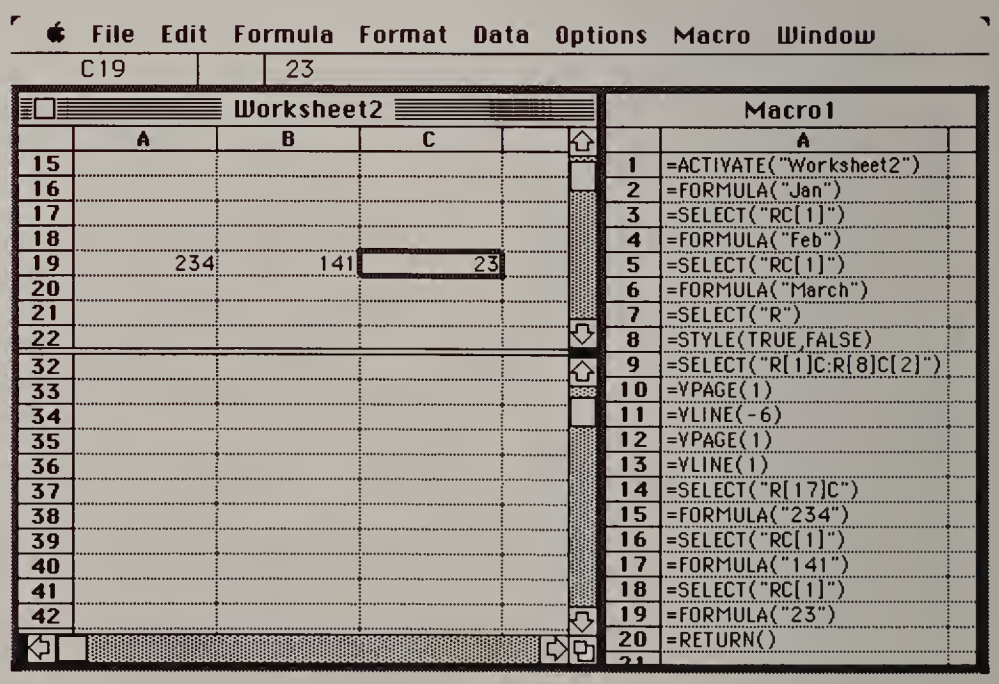

Figure 1

A good way to become familiar with Excel's *macro recorder is to open a new worksheet and macro sheet and juxtapose the windows. Next, start the macro recorder and issue some commands–scroll around, resize the worksheet window, and type a value or two. You'll see the macro language commands appear on the macro sheet as you go.*

scribed and issue some commands–scroll around, select a few cells, resize the worksheet window, and type a value or two. You see the macro language commands appear in the macro sheet as you go, evidence that *Excel* is recording each move. When you finish experimenting, choose Stop Recorder from the Macro menu.

The final step in creating a macro is naming it. Select the macro's first cell and choose Define Name from the Formula menu (see Figure 2). Type a short, descriptive label in the Name box and then click the Command button to specify the type of macro. Finally, if you want to be able to run the macro by typing an Option-⌘ key sequence, type a letter in the Option-⌘ box.

To execute the macro, choose Run from the Macro menu and double-click on the macro's name, or press Option-⌘ while typing the letter you assigned to the macro. As you watch *Excel* repeat your performance at lightning speed, you'll begin to appreciate the power of the macro recorder.

Generic Macros

The bottom-line figure macro I mentioned earlier simply creates and manipulates windows; it doesn't perform any actions relating to a particular worksheet, such as entering or calculating specific values. Since the macro isn't locked into a certain worksheet, it would be convenient if you could use the set of instructions with any *Excel* worksheet.

When you use the macro recorder, however, the resulting macro is tied to the worksheet you used when recording the macro. In the bottom-line figure macro, for example, when you activate the main worksheet, called Expenses, before resizing it, the macro recorder creates the command =ACTIVATE ("Expenses"). If you close the Expenses worksheet and open one called 1st Qtr Expenses, you get an error message if you try to run the bottom-line figure macro because the macro expects to find a worksheet called Expenses. Also, since *Excel* records scrolling and cell selections, the resulting macro expects the worksheet to be a specific size and for cells to be located in specific places. If a different worksheet is larger or smaller than the one you used when recording the macro, the macro may not scroll to the right cell.

You can create a "generic macro," one that works with numerous worksheets, by abandoning the macro recorder and typing the macro from scratch. A better method, however, is to use the macro recorder to capture the basic maneuvers and then edit the resulting macro to be generic.

A Mini Macro

An important step in making the bottom-line figure macro generic is to define the bottom-line figure cell of the main worksheet with a name. By doing so you can create a macro that, instead of scrolling a relative number of cells, scrolls to the exact cell you want. To appreciate why naming the cell is important, consider the directions to your house. If you specify the directions in relative terms, saying "go straight three blocks, turn right, and then make the next left," the directions lead only your friend to the door; someone living in a different part of town can't use them. If, however, you use names, saying, "Take Route 101 to Elm Street and then go left on Union Street," the directions become generic because anyone knowing those streets can find your house.

You can name the bottom-line figure cell manually by selecting it and choosing Define Name from the Formula menu, then typing the name *bottom.line*. That technique, however, locks you into that cell as the bottom-line figure cell unless you later repeat the Define Name procedure with another cell. Another short macro can do the defining for you and let you change the bottom-line figure cell with a keystroke. The macro, called *set.bottom.line,* automatically gives the name *bottom.line* to the selected cell or range of cells:

```
=DEFINE.NAME("bottom.line",SELECTION())
=RETURN()
```

Define this macro as a command macro and assign it to the Option-⌘-S key sequence. Once you name the macro, you can use it to designate the bottom of a column or the right edge of a row as the bottom-line cell.

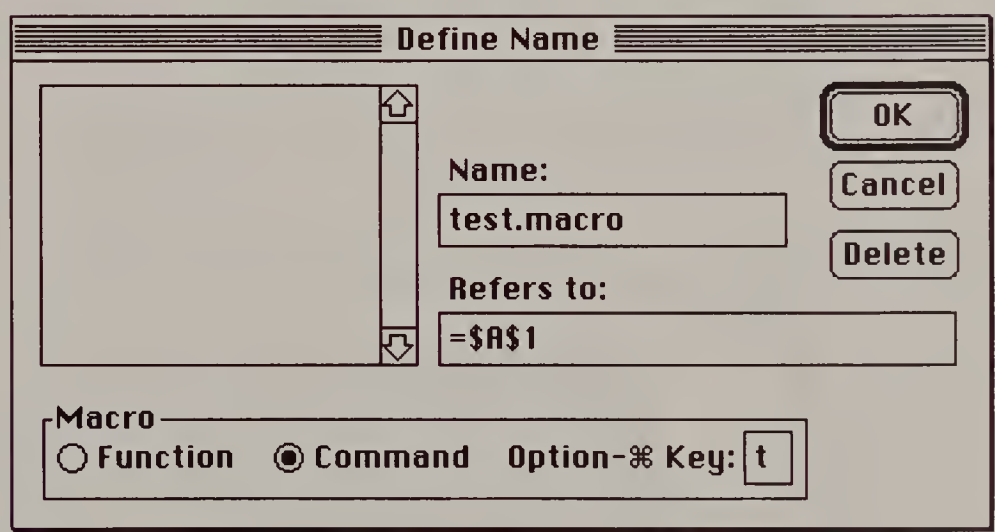

Figure 2
After you create a macro, name it by selecting its first cell and choosing Define Name from the Formula menu. Type a name in the Name box and then click the Command button to tell Excel *that the macro is a command macro. You can also assign an Option-⌘ key sequence to the macro.*

Workhorse Macro

The *set.bottom.line* macro makes it possible for the real macro worker, the one I call *view.bottom.line,* to operate. The macro appears in the first column of Figure 3; let's go over it cell by cell. Cell A1 identifies the macro. In cell A2 the current window–the active window at the time the macro runs–resizes to a depth of 260 pixels, or screen dots. Assuming the window is near the top of the screen, as most are, the 260-pixel depth leaves just enough space for the second, smaller window to fit below. The macros use pixels as increments to measure length and width and as coordinates for positioning windows on the screen.

In cell A3 the macro creates a second window to the current document. If the original window is titled Forecast, *Excel* titles the new window Forecast:2 and renames the first Forecast:1. In cell A4 the new window resizes to the full screen width, or 512 pixels, but only 55 pixels deep–about the right size to display one row of *Excel.*

Cell A5 moves the new window so that its top-left corner is at the left margin–pixel number 1–and approximately ¾ inch from the bottom of the screen at pixel number 290. The macro then selects the cell that the small macro named *bottom.line.* The exclamation point before the name *bottom.line* in cell A6 tells the macro to look in the active window for a cell with that name. Without the exclamation point the macro looks only on the macro sheet for the named cell; since no cell called *bottom.line* exists on the macro sheet, a missing exclamation point would stop the macro and cause an error message to appear. To help the bottom-line figure cell stand out, cell A7 issues a Copy command that surrounds the cell with a moving marquee.

The formula in cell A8 works like *Excel's* ⌘-M, which activates the next window down on the desktop, in this case the *Excel* worksheet's main window. The window you just deactivated goes to the bottom of the pile of windows on the desktop, so one of the other windows might obscure the *bottom.line* window. To avoid losing sight of the bottom line, keep the bottom of the screen–where you positioned the bottom-line window–free of other windows.

The final macro cell, A9, contains the command that returns control of *Excel* to you. Every *Excel* macro must end with a RETURN function.

What Next?

The examples only scratch the surface of *Excel's* macro talents. If you're willing to learn a programming vocabulary, you can create macro sequences that resemble computer programs in their power and flexibility. With *Excel's* INPUT function, for example, you can instruct a macro to pause while you enter a value from the keyboard. The IF function lets macros test for certain conditions and act accordingly–like adding the sentence "If Elm Street is closed, take Grove Street instead" to the directions for your friend.

Best of all, *Excel's* macro recorder makes it possible to avoid for a long time diving into the macro function listings in the *Excel* manual. Between the macro recorder and *Excel's* English-like macro programming language, you'll be able to create powerful macros that streamline *Excel* sessions and let you get more done in less time. That's the real bottom line. □

M/entry

	A	B
1	view.bottom.line	set.bottom.line
2	=SIZE(,260)	=DEFINE.NAME("bottom.line",SELECTION())
3	=NEW.WINDOW()	=RETURN()
4	=SIZE(512,55)	
5	=MOVE(1,290)	
6	=SELECT(!bottom.line)	
7	=COPY()	
8	=ACTIVATE.NEXT()	
9	=RETURN()	
10		
11		
12		

Figure 3
This Excel *macro sheet, titled M/entry, holds two macro listings.* View.bottom.line *in column A opens a second window to a worksheet, shrinks it to fit at the bottom of the screen, and displays the bottom-line figure cell in the new window. The macro in column B defines the selected cell in a worksheet as the bottom-line cell that the* view.bottom.line *macro will highlight.*

Danny Goodman is a Contributing Editor of Macworld.

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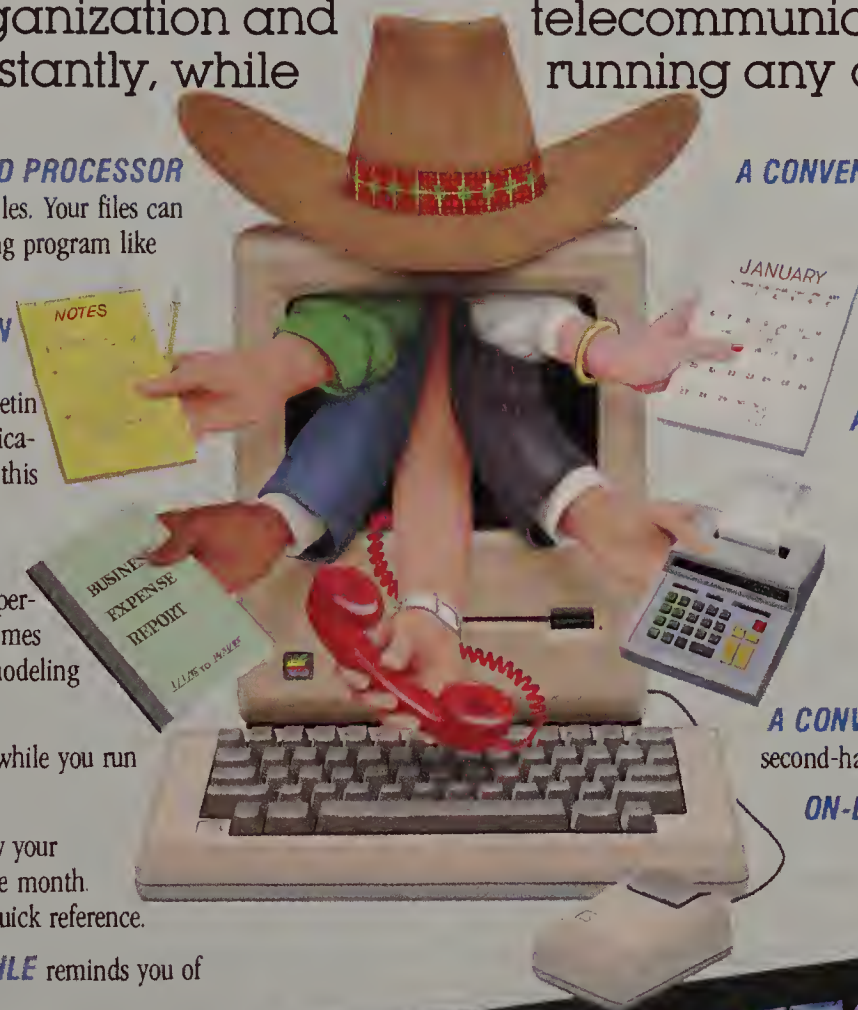

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Electronic Ledgers for the Macintosh

Steve Mann

The world of accounting seems pretty dull to many personal computer owners, who rank studying ledgers on a par with reading the telephone book. But to accountants, auditors, bookkeepers, and bankers, debits and credits are the lifeblood of a business. For the financial specialist—and for any small-business owner—a company's books vividly chronicle the daily transactions that add up to the health of an enterprise. The reports created by accounting software describe the habits of a living entity—your business.

You might think there are only so many ways to keep the books of a business. On the contrary, although all accountants record and report financial incidents, or events, accounting programs are as individual as personal diaries.

Several accounting programs for the Macintosh are now on the market. This review examines three general ledger programs aimed at small businesses: *Back to Basics, Rags to Riches,* and *Symposium*. The products differ in accounting principles, reporting capabilities, transaction entry methods, and flexibility.

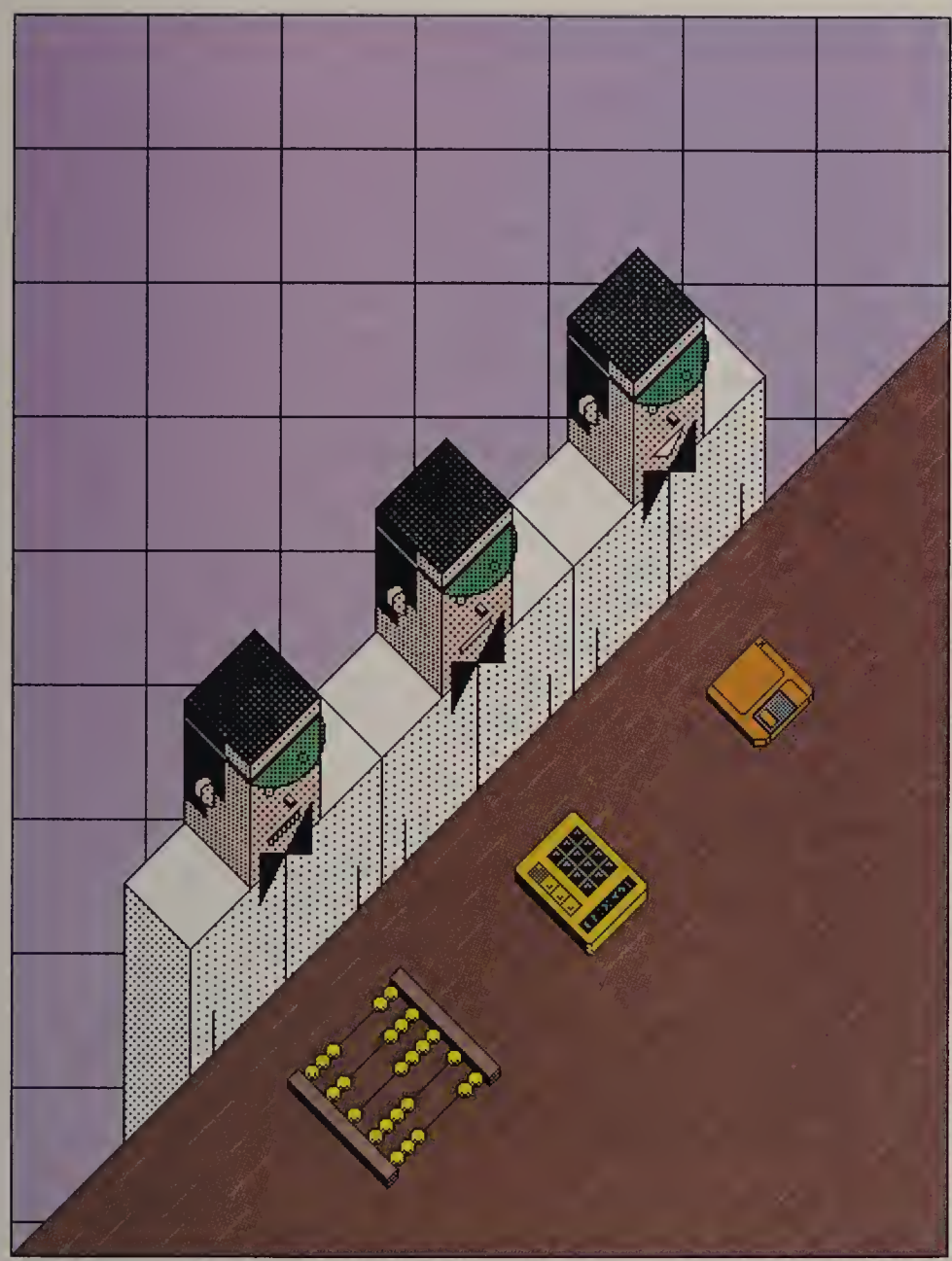
Back to Basics

The *Back to Basics* general ledger program from Peachtree Software has been available for the Macintosh since late 1984. It lets you maintain a cash-basis general ledger with subledgers for cash disbursements by check, for cash receipts, and for cash sales (to keep track of cash register sales). Accounts payable and accounts receivable programs are available and can be linked to the general ledger for accrual-basis accounting.

Back to Basics accommodates up to 254 four-digit general ledger account numbers, ten departments, and about 3000 transactions per month, more than enough for many small and medium-sized businesses, depending on the type of business. For instance, a neighborhood grocery store may need a program that can handle more transactions, but a freelance writer doesn't.

System Requirements

Back to Basics works on a 128K Mac with two disk drives, a 512K Mac with one or two drives, or a Mac XL with *MacWorks. Back to Basics* is copy protected with a key-disk scheme. You can copy the program onto a hard disk as long as you're willing to insert the original program disk every time you start up. A hard disk improves the performance of the general ledger but does not increase its capacity for accounts or transactions.



Back to Basics' chart of accounts uses predefined number ranges for each type of account. For instance, asset accounts get a number between 1000 and 1999, and income accounts range between 4000 and 4499. If you currently use a different numbering scheme, you'll have to renumber your accounts. Once you clear that hurdle, it's easy to set up and use the program. The program includes a sample chart of accounts that you can use or modify, simplifying the task of setting up the general ledger for the first time.

Windows to Files

When *Back to Basics* opens, a file cabinet appears on the left side of the screen (see Figure 1). Each of the seven drawers corresponds to one of the program's functions, such as chart of accounts, general transaction entry, or report generation. Double-clicking on one of the file drawers opens a window that fills the rest of the screen. When entering a transaction, you can open a second window that lets you scroll through the chart of accounts and select an account number for the transaction. You cannot open more than two windows at a time.

The program's two-window restriction isn't necessarily a problem, but it limits your ability to browse through existing accounting information. For instance, before you enter a cash receipts transaction, you might want to check to see if it was already entered. But to view a list of cash receipts transactions, you have to close the cash receipts entry window and open the reports window. A more effective use of windows would simplify this process.

Accounting Reports

Back to Basics was designed by a certified public accountant (CPA). It has strong accounting controls, which stop you from entering information at the wrong place or time, helping to guarantee that your financial data is correct.

The *Back to Basics* reports include a chart of accounts report, a balance sheet, an income statement, and a trial balance—a combined income statement and balance sheet with account numbers. Detailed transaction lists for the general ledger and cash disburse-

ments, cash receipts, and cash sales subledgers are also included. All reports can be saved on disk, printed, or viewed on screen. Other useful features include automatic transaction entry, which simplifies handling of recurring transactions like a monthly loan payment, and provision for generating separate income statements for each of up to ten departments in a company. This feature allows you to track the profitability of each department separately.

The documentation for *Back to Basics* includes a section that gives an excellent introduction to accounting fundamentals, explaining accounting terminology and procedures. Other sections include complete setup and installation instructions, an adequate tutorial, a detailed index, and a description of methods for handling 61 business situations such as depreciation of assets and periodic or perpetual inventory.

Symposium

The *Symposium* general ledger handles cash receipts, cash disbursements with check writing, and general ledger transaction entry; however, the program does not have a subledger for cash sales. If you need to track inventory, this program can estimate monthly adjustments to inventory accounts for the whole company or an individual department. Like *Back to Basics,* the *Symposium* general ledger was designed by a CPA and has good accounting controls. No companion programs exist as yet for accounts receivable and accounts payable.

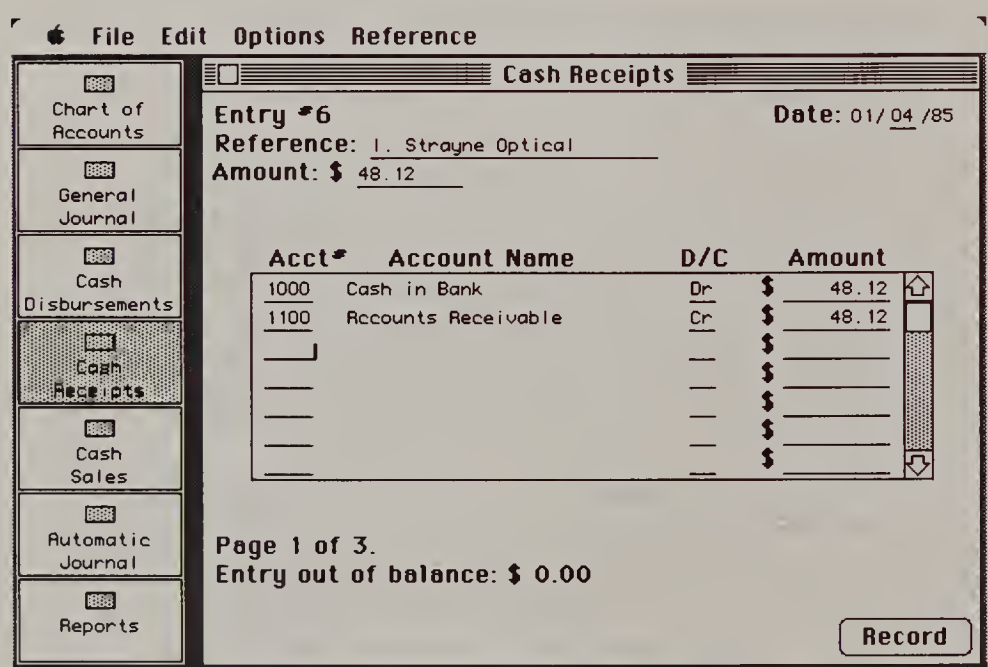


Figure 1
The seven file drawers of the Back to Basics *screen correspond to the program's functions. Double-clicking a drawer opens a window such as the Cash Receipts transaction entry window shown here.*

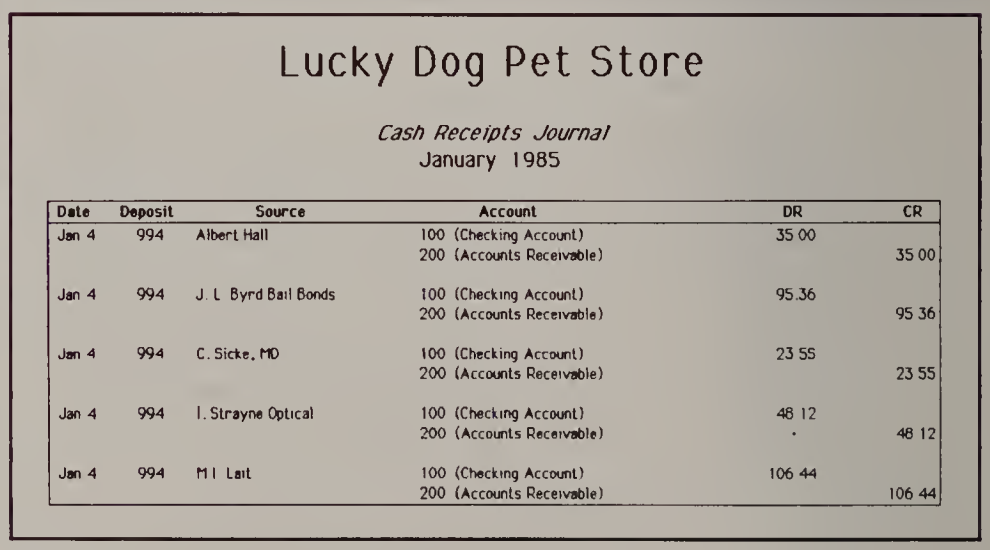
System Requirements

The program works on a 128K or 512K Mac with one or two disk drives—two drives are recommended—or on a Mac XL with *MacWorks.* It is not copy protected, so you can easily run it on a hard disk.

Symposium has several advantages over *Back to Basics.* You can set up any number of 4-digit general ledger account numbers, and you can number the accounts in any order, making it easy to retain your current numbering system. You can also set up any number of departments. The only limit on the number of accounts, departments, and transactions is available disk space. Unfortunately, *Symposium* doesn't handle a full disk gracefully: it crashes with the dread "serious system error" message. To avoid the error, you must monitor disk space with the Finder, as explained in the *Symposium* documentation.

Accounting Reports

Symposium produces a set of financial reports suitable for common accounting applications. These reports include a chart of accounts, a trial balance, an income statement, a balance sheet, and detailed transaction lists for the general ledger and disbursements and receipts subledgers. For your convenience, some reports can include comparison columns showing data for the previous month or year for each report line.



Lucky Dog Pet Store

Cash Receipts Journal
January 1985

Date	Deposit	Source	Account	DR	CR
Jan 4	994	Albert Hall	100 (Checking Account)	35 00	
			200 (Accounts Receivable)		35 00
Jan 4	994	J. L Byrd Bail Bonds	100 (Checking Account)	95.36	
			200 (Accounts Receivable)		95 36
Jan 4	994	C. Sicke, MD	100 (Checking Account)	23 55	
			200 (Accounts Receivable)		23 55
Jan 4	994	I. Strayne Optical	100 (Checking Account)	48 12	
			200 (Accounts Receivable)		48 12
Jan 4	994	M I Lait	100 (Checking Account)	106 44	
			200 (Accounts Receivable)		106 44

Figure 2
Symposium *reports cannot be displayed on screen, but the printed reports incorporate a variety of text styles and sizes.* Symposium*'s reports include the chart of accounts, a trial balance, an income statement, a balance sheet, and detailed transaction reports for the general ledger and the disbursements and receipts subledgers.*

You can specify balance sheet report subtotals for up to nine groups of account numbers, allowing you to summarize related accounts. Reports can only be printed, not displayed on the screen. Offsetting this shortcoming is the professional look of the reports, which include a variety of font styles and sizes and feature a large heading with the company name and italicized report titles (see Figure 2). You cannot vary the report formats.

Convenient Windows, Cumbersome Entry

A typical *Symposium* screen configuration includes separate windows for the company data, the chart of accounts, and the cash receipts journal (see Figure 3). The company data window shows the company name, the year currently stored in the general ledger, and the month whose financial events are currently displayed. The cash receipts journal lists all cash receipts subledger transactions already entered. While the company data window cannot be manipulated, both the chart of accounts and the journal windows can be moved, resized, and scrolled. In this way, *Symposium* gives you more flexibility and control over your interaction with the program than *Back to Basics* does.

When you start to enter a general ledger transaction, a transaction entry window appears. Each line of the transaction must include a general ledger account number. Unfortunately, you must know the numbers by heart or have a printed list handy. If you can't supply the number, you must cancel the entry, check the chart of accounts for the correct choice, and start the transaction entry all over again. The inconvenience is a strange oversight in an otherwise high-quality program. You should be able to call up the chart of accounts window at any time for easy reference, as you can in *Back to Basics*.

Symposium's documentation is short and leaves much to be desired. It has no explanation of accounting principles, no tutorial, and no index. The most complex capability of the program—inventory adjustments—is not clearly explained.

Rags to Riches

You can use the *Rags to Riches* general ledger for either a cash- or accrual-basis business that logs a moderate number of income and expense transactions each month. The program has no separate subledgers for cash disbursements, cash receipts, or cash sales, which could make implementing a cash-basis system

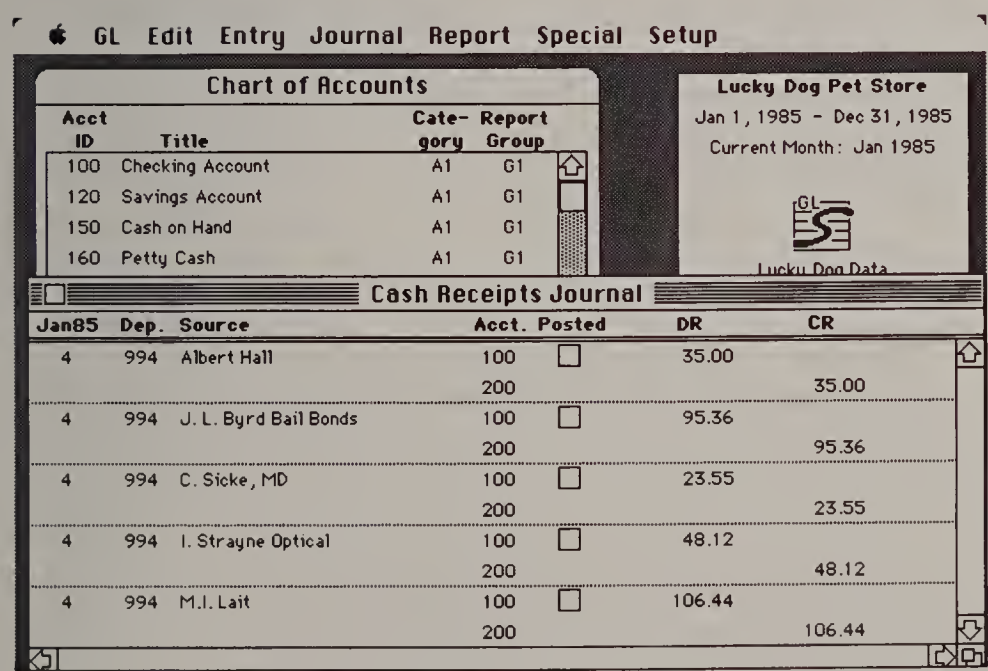


Figure 3

A Symposium *screen. The small window in the upper-right corner contains the name of the general ledger file in use, the fiscal year in effect, and the current month. The Chart of Accounts window lists the general ledger accounts by number, and the Cash Receipts window lists the transactions entered in the cash receipts subledger.*

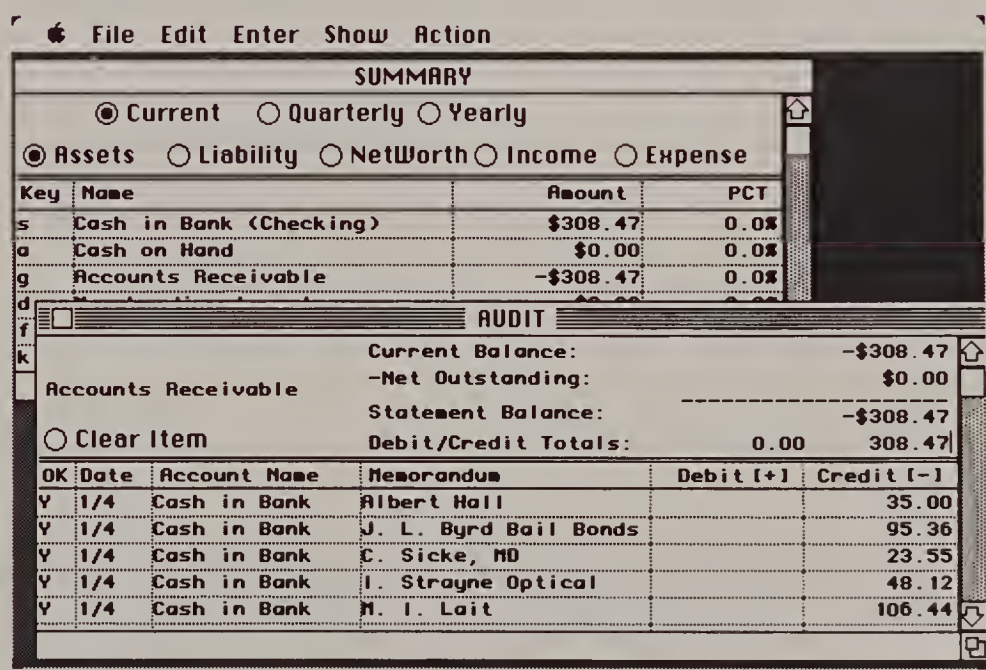


Figure 4

Rags to Riches *displays information hierarchically, with the top level of the hierarchy—the Summary window—listing the general ledger account names and balances. Double-clicking an account name opens the Audit window, which lists the current transactions for that account. Double-clicking on a transaction opens the Data window, which shows the details of the transaction.*

Accounting Fundamentals

Both manual and computerized accounting systems start with a collection of financial data, called a *general ledger,* that describes all the financial activities of a business. Each entry in the general ledger describes a single financial event, often called a *transaction,* such as the purchase of a piece of machinery.

The general ledger supplies the information for the reports that describe the status of a business. One important report, the *income statement,* summarizes all the recent transactions that affect profits: income from the sales of goods or services and outgo for the payment of expenses. The difference between income and expenses is the profit or loss.

Another important report, the *balance sheet,* summarizes the long-term financial status of a business. It compares assets such as cash in the bank and the value of inventory with liabilities such as outstanding loans or unpaid bills. The difference between assets and liabilities, called *equity,* measures the value that the business has built up over time.

Most accounting systems organize the general ledger by numbered accounts, where each account number roughly translates to a line on a financial statement. For instance, if account 100 tracks the balance in a checking account, every check written and each deposit made to that checking account must be entered as a transaction for general ledger account 100. That way the ledger always has the information needed to calculate the current checking balance. The complete set of account numbers is called the *chart of accounts.*

To avoid cluttering the general ledger with thousands of financial transactions, accountants often use subsidiary ledgers, or *subledgers,* for transactions of a specific type. An accounts payable subledger, for example, contains all the transactions related to paying bills. In contrast, an accounts receivable subledger tracks all the income received. The detailed subledger information is summarized and entered in the general ledger so that the general ledger provides a complete overview of the business's financial status.

The number of subledgers you need depends on the nature of your business and the financial details you might want to separate for specialized analysis. Accounts payable and accounts receivable subledgers may be found in almost any accounting system because almost everyone pays bills and collects income. But only a business that carries many items in inventory would be likely to use an inventory sub-

difficult. The general ledger program works best with two companion programs—accounts receivable and accounts payable with check writing.

The account number and transaction capacity of *Rags to Riches* is limited by memory. A 128K Mac has room for a combination of about 250 active accounts and transactions. A 512K Mac can handle a combination of about 10,000 accounts and transactions.

Rich in Windows

Rags to Riches has the most windows of the three programs I reviewed. The general ledger can display eight windows simultaneously, which you can reposition. At times the number of windows can be confusing, but the organization of information in the windows and the relationships between windows made a lot of sense to me.

The windows establish a hierarchy of information. At the top level is the Summary window, which lists the general ledger accounts. Each line shows an account name and balance. *Rags to Riches* does not require that you use account numbers, which are an archaic accounting tradition. If you double-click an account title, the next level window, named Audit, opens, showing the current transactions for that account (see Figure 4). If you double-click a transaction line, the Data window that was used to enter the transaction appears.

Rags to Riches is the most imaginative program of the three I reviewed. This program is the forerunner of accounting software designed for window environments. In fact, it departs from traditional accounting procedures, which are used by *Back to Basics* and *Symposium,* and provides you with an unusual view of your accounting data that intuitively makes more sense. It also has a variety of shortcuts for simplifying transaction entry, like single-key designation of frequently used accounts. *Rags to Riches* has a few ac-

ledger. A psychologist wouldn't need an inventory subledger, while a computer manufacturer, retailer, or distributor probably would.

The point at which you record income and expenses in the general ledger also determines which subledgers an accounting system needs. If you record income when you receive it and expenses when you pay them, you use *cash-basis* accounting. If you record income and expenses when obligations arise, not when money changes hands, you use *accrual-basis* accounting. Either method is allowed for tax reporting purposes.

Cash-basis accounting is appropriate for a small single-owner business such as a neighborhood grocery store or a small consulting business with few customers. Either the bulk of the financial transactions are actually conducted in cash, or so few invoices are sent and received that the business owner can readily keep track of what the business owes and is owed.

Cash-basis accounting systems usually tally expense and income transactions in two subledgers called *cash disbursements* and *cash receipts*. Most computerized cash disbursement systems can print checks for you. Typically, cash disbursements and receipts subledgers are not organized by customer or vendor. And because you only enter transactions when money changes hands, you can't directly track payables or receivables.

Accountants recommend accrual-basis accounting for larger businesses. Accrual-basis systems usually have accounts payable and receivable subledgers, which can store detailed information about your customers and vendors in addition to details of each income and expense transaction. The data is organized by vendor or customer, permitting analyses not normally available with a cash-basis system, such as detailed payment histories by customer.

One final note—you can implement accrual-basis accounting procedures with a cash-basis system, but the procedure can get complicated. You have to set up general ledger accounts for receivables and payables, and then enter all income and expense obligations directly to those accounts. If you have a lot of transactions in both categories, the general ledger may not be able to store all the information. Additionally, you must make sure the payables and receivables accounts properly reflect cash receipts and disbursements as they occur. If you use accrual-basis accounting, it makes sense to use receivables and payables subledgers with the general ledger.

counting control weaknesses, however. For example, while you can work with one month of data at a time, the program does not correctly handle entries dated outside of that month.

Accounting Reports

The program provides fewer reports than *Back to Basics* or *Symposium;* for example, trial balance and reports from subledgers are lacking. The general ledger prints only an income statement, balance sheet, chart of accounts, audit trail, and transaction list. None of the reports can be viewed on screen, although the transaction list and chart of accounts print out in a form nearly identical to their respective program windows.

Rags to Riches does not let you specify departments, but you can indicate up to nine subtotals on the income statement and balance sheet to produce department totals. Also, the font required for report printing, Monaco-12, was inexplicably absent from the *Rags to Riches* disk. You must use Apple's Font Mover to copy the missing font from another disk, a procedure not explained in the program's documentation. Those shortcomings, however, are offset by the amount of detail you can view directly in the program windows.

The *Rags to Riches* documentation needs some work. The tutorial is too brief, and the explanations of how to finish each accounting month are weak. The documentation, however, includes a good section on sample financial transactions, a useful index, and a glossary.

Selecting a Mac Accounting Package

The *Back to Basics, Symposium,* and *Rags to Riches* general ledger programs are worth considering if you're looking for an accounting package for the Macintosh. All the programs have adequate audit trails, which trace transactions all the way through the entry and reporting processes. All three have adequate accounting controls, although *Rags to Riches* falls short in checking dates during transaction entry. Furthermore, all the programs allow you to correct transaction errors.

Before you select any of these programs, analyze your requirements to determine if the programs will accommodate them.

Each program has its shortcomings. Only *Back to Basics* lets you export data to other programs: you can save reports on disk and open them with *MacWrite.* All three have an edit menu for cutting and pasting fields between entries within the program. I found no way to copy accounting information to a spreadsheet. Both *Symposium* and *Rags to Riches* would benefit from improved documentation. *Back to Basics* and *Symposium* need more convenience features for data entry. *Symposium* crashed when I tried to create a new account or transaction on a full disk.

Back to Basics general ledger is fine for small or medium cash-basis businesses. With the companion accounts receivable and accounts payable programs, it should be suitable for medium or large accrual-basis businesses. *Symposium* general ledger is appropriate for small, medium, or large cash-basis businesses or accrual-basis businesses that don't have a lot of transactions. *Rags to Riches* general ledger, without accounts payable and receivable, is appropriate only for small businesses. With the companion programs on a 512K or larger Mac, it can handle large accrual-basis businesses.

Before you select any of these programs, talk to your accountant and your bookkeeper. Review the documentation to make sure the reports are adequate. Analyze any special requirements you may have such as departments, special report subtotals, or inventory adjustments, and try to determine if the programs will accommodate your needs. Think about how you'll adapt your current accounting methods to these programs. Once you make it past these considerations, you can enjoy the wonderful world of window-based accounting software. □

Steve Mann is an electronic data processing auditor and an accounting systems designer for the San Francisco office of the accounting firm Peat, Marwick, Mitchell & Co.

Back to Basics General Ledger
Peachtree Software
4355 International Blvd.
Norcross, GA 30093
800/554-8900
List price: $175, Accounts Receivable and Accounts Payable $175 each

Symposium General Ledger
Symposium, Inc.
914 Silver Spring Ave. #103
Silver Spring, MD 20910
301/587-6381
List price: $299

Rags to Riches General Ledger
Chang Labs
5300 Stevens Creek Blvd.
San Jose, CA 95129
800/972-8800, 800/831-8080 in California
List price: $199, Accounts Receivable and Accounts Payable $199 each, all three programs $499.50

If you've been waiting to buy a hard disk for your Mac till Apple introduced their version, the long wait is over.

And look what they've given you. A disk drive that has the same footprint as your Mac. Makes it 3½" taller. And does who-knows-what to its carefully thought-out ergonomics.

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Start with the case: instead of jacking your screen way up in the air, our drive sits right next to your Mac. And looks like it belongs there. In terms of styling, proportion, and balance, it's a perfect fit.

And that's just the surface. Inside, you'll find a full 10 or 20 MB. A lightning-fast 85 ms average seek time. An extra serial port. And the kind of reliability that lets us give you a one-year warranty.

So if you've been waiting for a hard disk that matches your Mac inside and out, go look at the MAC 10 and MAC 20. At better Apple dealers who know a good thing when they see one.

The perfect hard disk for your Macintosh might not be an Apple.

Paradise Systems, Inc., 217 East Grand Ave., South San Francisco, CA 94080
(800) 822-2020 Ext. 312 (CA) or (800) 527-7977 Ext. 312 (Outside CA)

PARADISE
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Special Delivery

Gordon McComb

Videx's Mail Center brings electronic mail to the Mac

Until recently, if you wanted to share a file with a co-worker, you had to carry or send a disk or a paper copy to that person's desk. But with Videx's Mail Center *you can send files to a co-worker via the AppleTalk network with a click of the mouse button.*

Mail Center lets you exchange messages and documents between Macintoshes linked in an AppleTalk network. You can send mail to any running Macintosh in your network that has the *Mail Center* software installed, even if the person you're sending mail to is at the Mac sketching a design in *MacPaint* or writing a memo with *Microsoft Word.* I should note right here that *Mail Center* does not work with Macs linked via modem. Other programs such as *MacTerminal* and *InTouch* are designed for that purpose (see "No Static At All" in this issue).

Mail Center works with either a 128K or a 512K Macintosh, though you may get "out of memory" messages often when you use a 128K machine. The program, which takes up about 80K of disk space, can run on a Mac with one disk drive, but you'll most likely be juggling disks often. For example, *Mail Center, Microsoft Word,* and the System Folder take up an entire disk, leaving no room for data or messages. The program is also compatible with hard disks and the Switcher, which are perhaps the best ways to use the program.

Mail Center consists of two disks, one for each of two Macintoshes. Since the program is copy protected, you need an original *Mail Center* application disk for each Macintosh in a network. The copy protection used is the "key access" type: when you first start the *Mail Center* application, the program asks you to insert the original disk. After you do so, you can put the original disk away until you turn off or reset the computer.

Both *Mail Center* disks contain the *Mail Center* application, and one has a program that installs the *Mail Center* desk accessory on the application disks you intend to use on the *Mail Center* network. *Mail Center* also comes in a six-disk pack. You can combine several packs to enable all the Macs in an AppleTalk network to converse with one another. You're limited to 32 Macintoshes on one network–the maximum allowed by AppleTalk.

The *Mail Center* Install program enables the Macintosh to monitor incoming mail. You can't receive mail if you use disks that don't have *Mail Center* installed. When you receive mail, the Mac beeps, and a small mailbox icon starts blinking on your screen. You click on the mailbox if you want to get rid of it. A Mail Preferences option is also installed in the Apple menu when you run the *Mail Center* installation program. The option lets you take your Macintosh off line when you don't want to be disturbed by incoming mail, which means the mailbox simply doesn't appear when mail is sent to your computer. You can also turn off the incoming mail beeper and position the mailbox icon at any of the screen's corners (see Figure 1). To use the installation program, you start the program, enter the name you want to be known by–your mailing address–and insert each of your application disks as prompted.

Videx's Mail Center *opens the door to easy interoffice mail. Without leaving your desk, you can send and receive files to or from anywhere on an AppleTalk network.*

Outgoing Mail

Sending and receiving mail with *Mail Center* are practically as easy as addressing an envelope and dropping it in a mailbox. To send mail, you first open the *Mail Center* application. Three windows appear on screen: On Line, Send Log, and Receive Log (see Figure 2). The Send and Receive logs display all the messages you've mailed or have received in the mail. The On Line window lists all the Macintoshes in the AppleTalk network that can receive mail. Those Macs, represented by a mailbox and an addressee name, are the ones that are turned on and using an application that's been set up with the *Mail Center* Install program. Alternatively, the information in the windows can be displayed by name, without the icons.

To send mail, you double-click on the mailbox with the recipient's name, or if you want to send the same mail to more than one Macintosh, you shift-click on several mailboxes. You then choose the Send Mail command from the File menu. A dialog box appears that lists all the data files on the current disk. You click a file to select it or shift-click on several to select more than one, and then you click the Send Mail button.

The Send Mail dialog box also includes a comments box that lets you include in a transmission up to 40 words of explanation about the mail (see Figure 3). Double-clicking on a Send or Receive log item displays the message. For example, you can alert the person receiving mail that a message is urgent and should be read promptly.

During the process of sending mail, *Mail Center* gives you a progress report. A graphic shows where the mail is going, and an indicator lets you know how many pieces are being sent and how many are left to go (see Figure 4). Depending on the length of the messages and the number of messages being sent, your Mac will be tied up transmitting mail for anywhere between 15 seconds and several minutes.

After the mail is sent, *Mail Center* updates the Send Log window. The log tells whom you sent mail to, the time and date of mailing, and whether the transmission was successful. A bad transmission can occur if the network is overloaded, for instance, or if insufficient space is available on the receiving disk to hold the mail. With a 512K Mac you can store up to 500 transactions per log. If you want to maintain a record of your transmissions, you can print the log or save it on another disk. By the way, the Send Log only lists the messages mailed and to whom. The logs do not contain the documents you sent. Therefore if you delete listings in a Send Log, the mail files remain on the disk.

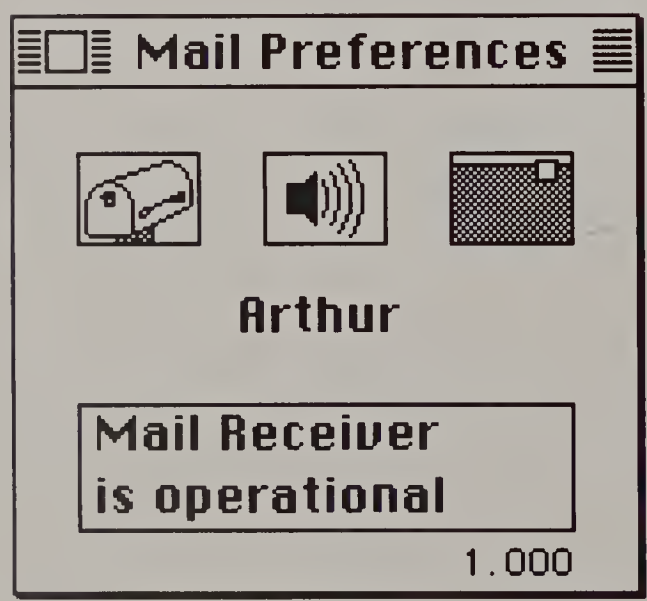


Figure 1
The Mail Preferences option lets you take your computer off line, turn off the sound, or select where you want the blinking mailbox to appear on the screen.

Incoming Mail

Receiving mail is even simpler than sending mail. You just wait for someone to send you a file. If the mailbox icon blinks and the Mac bleeps while you're sorting a database, you know mail awaits you. The mail you receive is saved on a disk, either a data disk on which you've put a folder to receive the mail or the application disk you're currently using. You can quit what you're doing and retrieve the mail or wait and open it later.

Mail Center transmits Macintosh documents in the normal data format, which means that if you send a *MacWrite* file, the person you're sending to gets a *MacWrite* file, including all the specified margins, paragraphs, and typeface styles. You can transmit several types of documents at once. They all appear on the receiver's disk the way you sent them. When documents are displayed on the desktop or in a dialog box, *Mail Center* adds the suffix *.Mail* to the name of every document that has been electronically transmitted.

The Receive Log, which appears on any disk that's been used to capture mail, lists the messages and documents you have received from others. Similar to the Send Log, the Receive Log lists whom the mail came from, when it was sent, and whether the transmission was completely successful. You can delete entries, save old logs, or print the contents of the window.

Mail Center transmits only as much data as disk space allows. To avoid incomplete transfers, use a hard disk.

One problem I discovered as I tested *Mail Center* was that while the person sending you mail knows if you're on line and ready to receive mail, he or she has no idea if you have sufficient room on the disks currently in your Mac's drives to hold the documents being sent. Should the disks be almost full, *Mail Center* transmits only as much data as space on the disks permits. Both you and the sender are told that the transmission was "partial" or "bad." You can usually avoid this problem by using *Mail Center* with a hard disk.

Mail Center Overview

Mail Center lacks an important feature that I think should be a part of electronic mail software for the Macintosh. Because the program can't send text-only files, you can't send a note without leaving the application you're working in. Text-only files are stored without formatting, fonts, sizes, styles, pictures, page breaks, headers, or footers. If *Mail Center* had a text-only feature working as a desk accessory, you could write a note while using any program and send the note without leaving the current application. Similarly,

the person receiving mail would be able to read the note without leaving the current application.

With *Mail Center,* if you want to send someone a memo, you must open *MacWrite, Microsoft Word, Jazz,* or another word processor, write the letter, quit the application, start the *Mail Center* program, and send the memo on its way. The recipient, upon getting your memo, has to quit the current job, find the appropriate word processing program, start it, and open the memo.

One way to send text-only files is to use the MockWrite desk accessory, available as part of CE Software's MockPackage. MockWrite is a text editor that you can use without quitting most applications. You must send mail using the *Mail Center* application, but the person you send mail to can read the incoming mail by opening MockWrite and selecting the mailed document.

Another way to eliminate opening and closing applications to send mail is to include *Mail Center* in the Switcher rotation so that when you need to send someone a document, you can transfer from *Word* to *Mail Center* in a split second.

All in all, I liked *Mail Center,* especially for its ease of use. The program applies the Macintosh user interface well and makes electronic mail a reasonable alternative to passing paper or disks to your co-workers. □

Gordon McComb is a Contributing Editor of Macworld.

Mail Center
Videx, Inc.
1105 N.E. Circle Blvd.
Corvallis, OR 97330
503/758-0521
List price: two-disk pack $299, six-disk pack $499, discounts available on quantity purchases

MockWrite
CE Software
801 73rd St.
Des Moines, IA 50312
List price: license $25, license and disk $30; includes MockWrite, MockPrinter, and MockTerminal

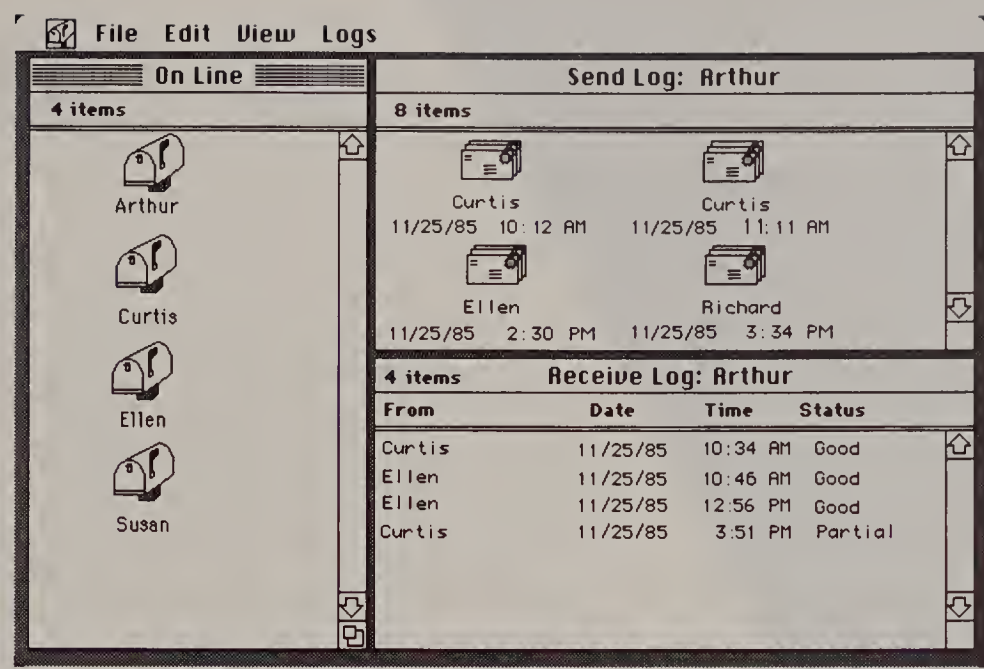


Figure 2
Mail Center *displays three windows. The On Line window indicates which computers in the network are currently on line, and the other two windows maintain records of incoming and outgoing mail.*

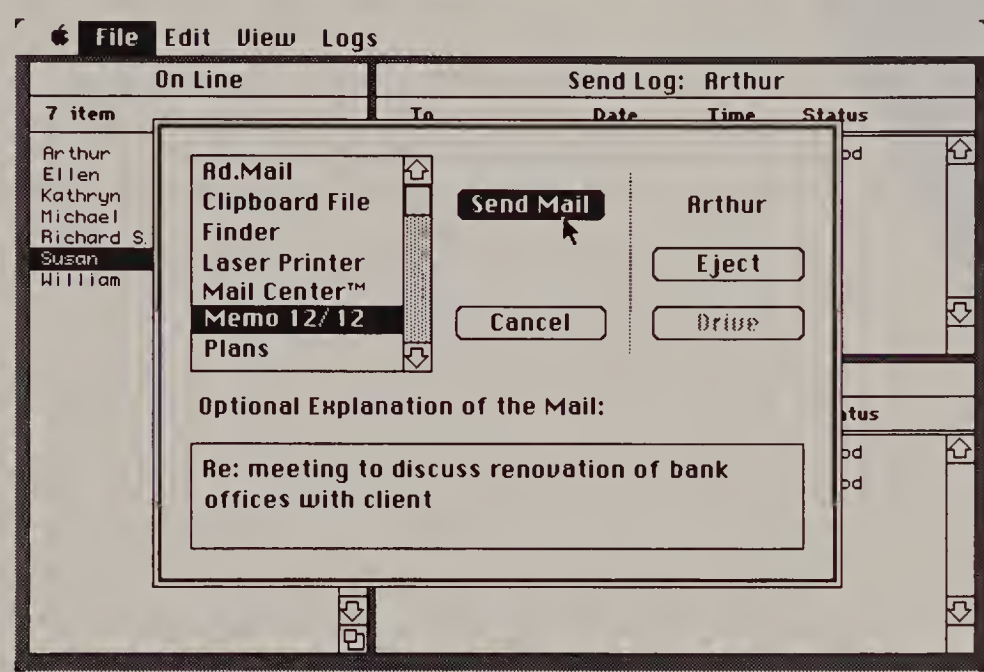


Figure 3
The Send Mail dialog box lists all the files on the current disk. You can send several files in a single transmission. You can also include a short message with the document you are sending.

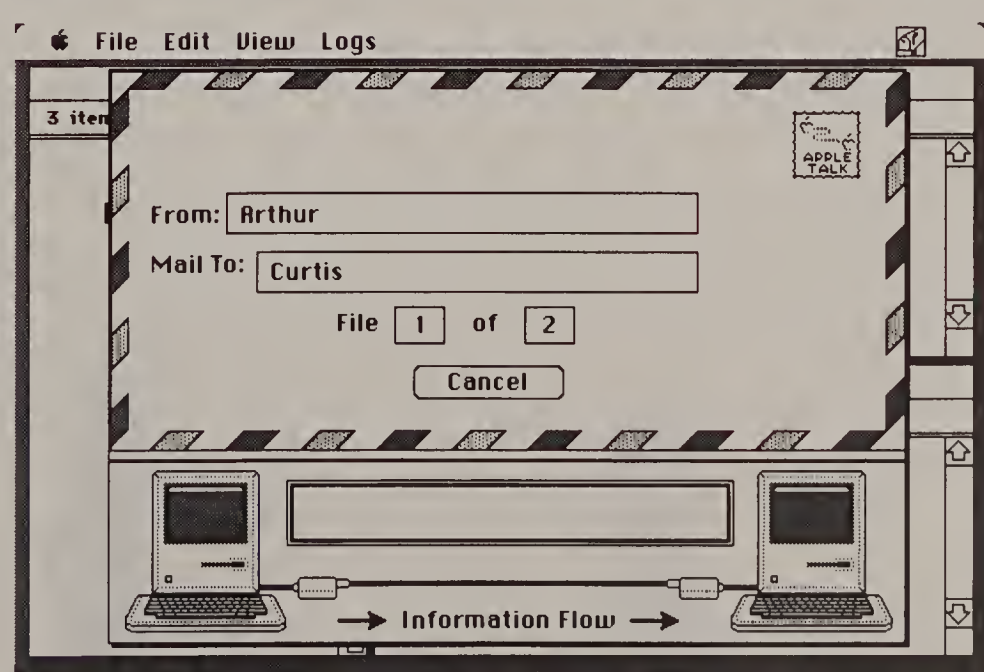
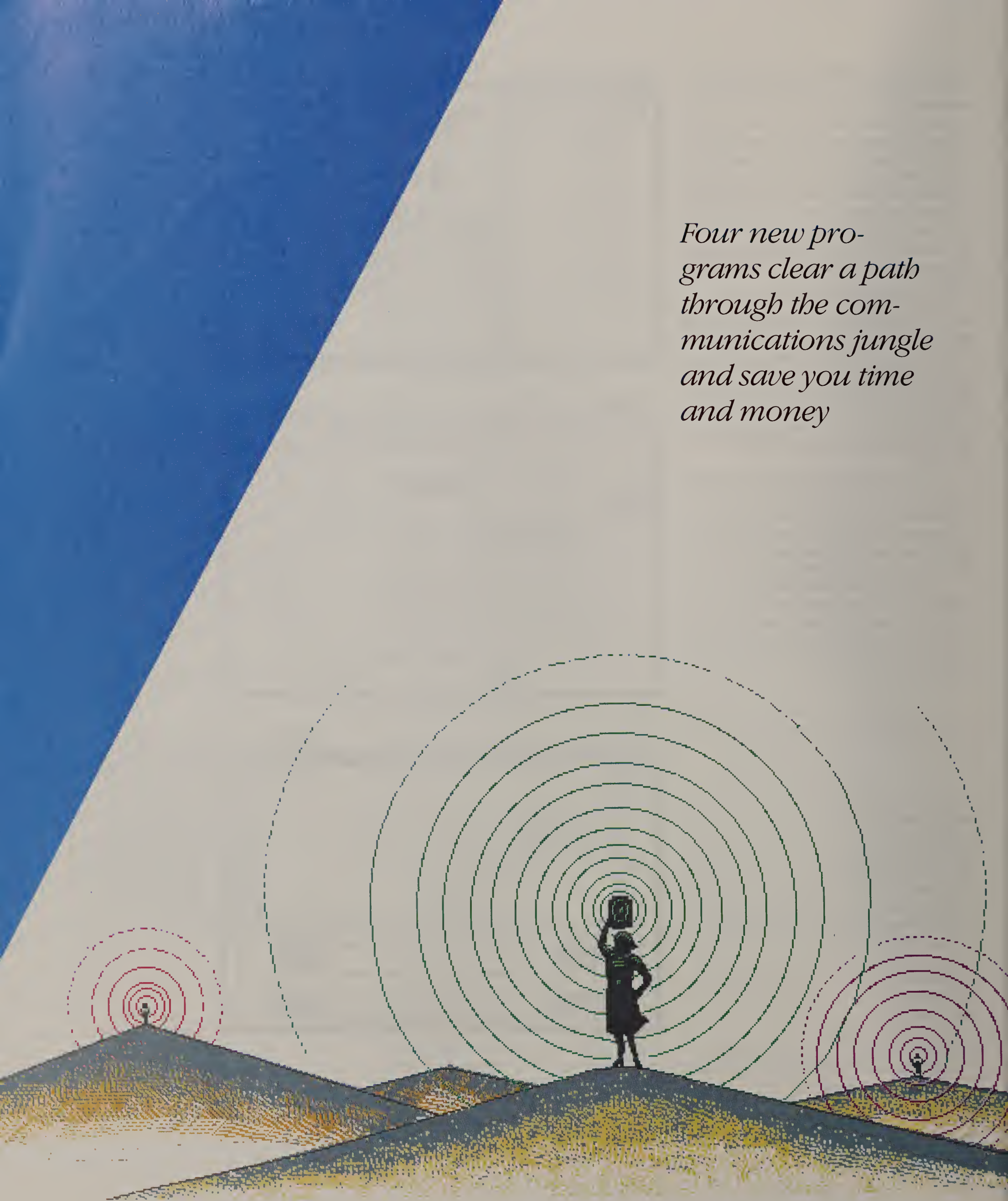


Figure 4
You can monitor the mail being sent by watching the message box below the envelope. Each time a file has been sent successfully, a small envelope passes across the screen.

Four new programs clear a path through the communications jungle and save you time and money



No Static At All

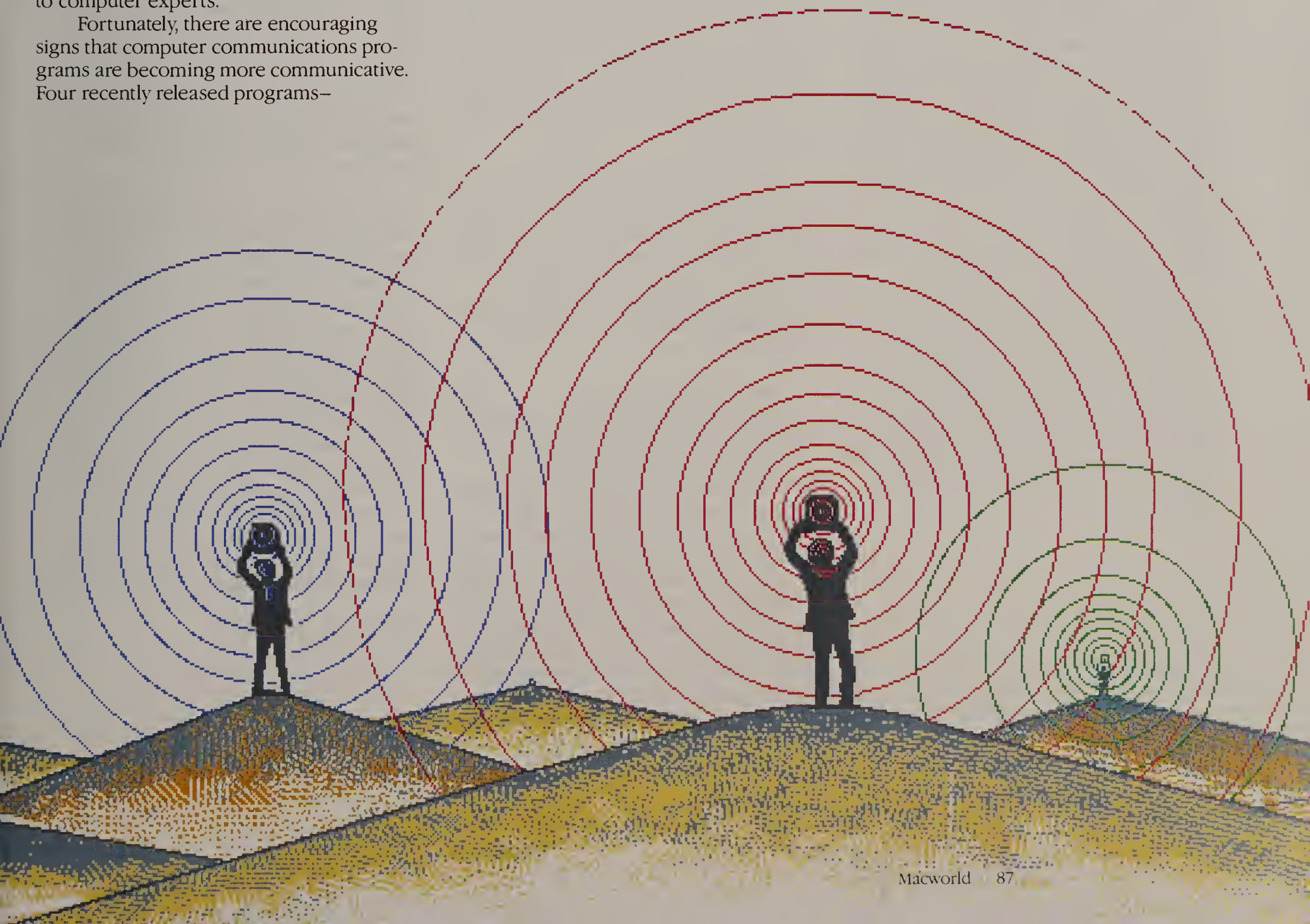
Jim Heid

For many Macintosh owners, entering the communications world is like embarking on an adventure with Indiana Jones. The treasures are out there–free software, news and stock quotes, discount shopping services–but the road to them is lined with potential adversaries. Like curses inscribed on the walls of a long-forgotten temple, awkward commands, control codes, and transfer protocols lie in wait, ready to impede your progress. Some people bravely sling modems over their shoulders and forge ahead to capture the largesse of information services and bulletin board systems. Others, however, retreat to the sanctuary of familiar disk libraries, convinced that communications is esoterica confined to computer experts.

Fortunately, there are encouraging signs that computer communications programs are becoming more communicative. Four recently released programs–*Smartcom II, Red Ryder, inTouch,* and *Telescape*–can help you tame the tangle of commands leading to on-line treasures.

Notice I said "help." As long as bulletin board systems and information services like CompuServe require typed commands, telecomputing will never be as easy as using programs like *MacPaint* or *MacWrite*. Still, these communications programs' ability to store lists of commands in "autopilot" documents enables you to dial a number, establish a connection, log on automatically, and move to a desired section of the information service all with a single command. *Smartcom II, Red Ryder,* and *inTouch* can even sign on while you slumber, sending or retrieving electronic mail or software when rates are low.

Besides making communications accessible to beginners, the programs reviewed here provide advanced communications capabilities for experts. People who use computers in corporations or universities can use the programs to emulate popular terminals such as Digital Equipment Corporation's VT-100. Hobbyists or



businesses can use *Telescape*'s remote access feature to turn a Mac into a bulletin board system.

Whether or not you're an expert, advanced communications software should be judged not only on features but also on its ease of use. Throughout this review I'll comment on how any advanced features are presented. The specifications of the products reviewed are listed in "Comparing Communicators."

Smartcom II

Smartcom II, from Hayes, uses icons to minimize typing and simplify the set-up of automated operations. This simplicity is the program's greatest strength, making it easy to learn and reducing the number of steps involved in day-to-day communications tasks.

You use *Smartcom II*'s icons to create autopilot sequences. (The communications world has its own terminology. If you think an *autopilot* helps a pilot fly an airplane or that *protocols* are for diplomats, see "The Age of Automation" and "Communicating with Accuracy" for an introduction to the jargon.) You create an autopilot sequence in *Smartcom II* by clicking icons that represent the operations the program can perform. As you click the icons, statements like "Start printing" or "Stop capturing to disk" appear in a window. You type only when you enter information, such as an identification number, needed to complete a particular autopilot step.

Smartcom II has a unique option that guards the confidentiality of text such as passwords. Protected text can't be viewed or changed even with a disk editing program such as *Fedit* or *MacTools.* When completed, an autopilot sequence looks like a computer program written in plain English (see Figure 1). You can execute a sequence immediately or at a later specified time.

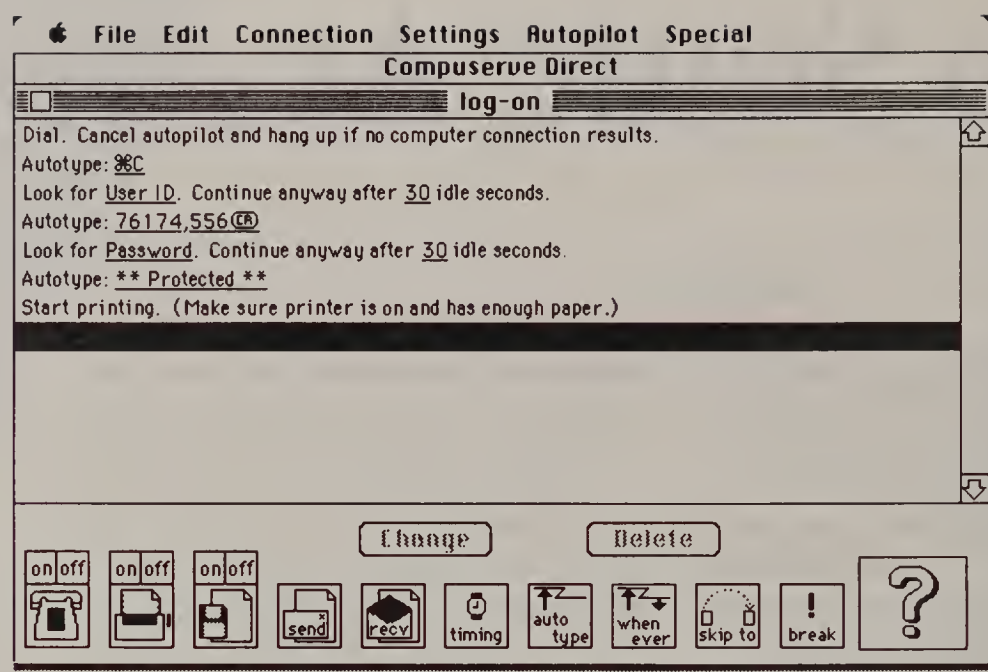


Figure 1
You create Smartcom II *autopilot sequences by clicking icons at the bottom of the screen. As you do, statements like "Start printing" or "Stop capturing to disk" appear in a window, showing the steps* Smartcom II *will take in the sequence. Here,* Smartcom II*'s "protect" option has been used to hide a password.*

Icons On Line

Smartcom II also uses icons to simplify operating on line. For example, you can send a file, print incoming text, or save text in a disk file by clicking an icon. Icon functions are easy to identify. To send a file, for instance, you click an icon depicting a stamped, addressed envelope. I found that the icons give a responsive feel to operating on line, and they don't obscure incoming text, like pull-down menus do, when you need to give a command. I'd like, however, to see ⌘-key equivalents for clicking the icons.

In the file transfer department, *Smartcom II* works with the Xmodem error-checking protocol and the MacBinary format, making it ideal for exchanging software with MicroNet Apple User's Group (MAUG). The program also offers the Hayes Verification protocol, which is useful for exchanging files with the IBM PC version of *Smartcom II.*

The Graphics Canvas

Smartcom II offers a graphics "canvas" that lets two people draw and exchange graphic images, provided they each have *Smartcom II* and a 512K Macintosh (see Figure 2). While one person draws an image with the program's *MacPaint*-like drawing tools, the other can see the drawing develop on screen and modify the image with the same tools. The Scrapbook on the *Smartcom II* disk contains a graphic chessboard you can use for on-line chess games. (Playing chess on line, however, is a pastime that may not be appreciated by other household members, since it ties up the phone.)

Smartcom II's canvas is interesting, but I'm not sure how useful it is for professional graphics applications. I can't imagine, say, two architects having an on-line discussion about a house design, with one dragging rooms around and typing, "No, put the bathroom here," and the other getting the last word by double-clicking the eraser. Under more casual circumstances, however, the ability to create and modify images on line may help colleagues sketch out impromptu ideas. This type of communication would be more beneficial if the participants could talk to each other as they draw.

On the negative side, *Smartcom II* lacks a macro facility. You can create autopilot sequences that send frequently typed commands, but sending such a sequence involves choosing a command, selecting the sequence name, and clicking a button—a time-consuming task compared to simply clicking a button or typing a ⌘-key sequence. It's also important to note that *Smartcom II* works only with modems that use Hayes commands. If your modem is not Hayes compatible (early Microcom MacModems aren't, though an upgrade is available), you can't use *Smartcom II.*

Overall, *Smartcom II* earns high marks for combining advanced features with simplicity. The program's detailed on-line help minimizes trips to the manual. I

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The Age of Automation

Dial a number, type a number, enter a password. Signing on to CompuServe or The Source is like unlocking a bank vault. *Autopilot* sequences are lists of commands that instruct a communications program to dial a number and then wait for a remote computer to send specific text, such as "User ID:." When the text is received, the program sends the ID number as if you had typed it. The program may then wait to receive the next prompt, such as "Password:," and then send the requested response. Once you create an autopilot log-on sequence, you need never sign on by hand again.

Automated communication is useful for more than sign-on sequences. You can tell the program to wait until after a specific hour, say 11 p.m., to sign on, retrieve your electronic mail, store it on disk, call up a closing stock quote, print it, and then sign off. Autopilot documents can accomplish most on-line tasks, short of chatting with other telecommunicators in a conference area.

Macros

Macros are scaled-down autopilot sequences. You can assign text, such as frequently typed commands, to specific keys and send the text by pressing a key or clicking an on-screen button. For example, the finger-twisting sequence **cat/des/age:7/key:binary** displays a description of all binary files added to a MAUG data library within the past seven days. Rather than wrestle with the keyboard, put the command in a macro. You also save money by spending less time on the service because the Macintosh can issue macros faster than you can type. Macros lack the flexibility of autopilot sequences, however. You can't make the program wait for specific incoming text or until a designated time before sending a macro.

Terminal Impersonations

For people who link their Macintosh to university or corporate mini or mainframe computers, *terminal emulation* is an important capability. Terminal emulation allows the Mac to duplicate the characteristics of popular terminals such as DEC's VT-100 or IBM's 3101. For the Mac to imitate a specific terminal, it must understand the specialized commands sent by the large computer to control aspects of the terminal's operation such as clearing the screen and positioning the cursor.

Similarly, the Mac can send commands in a format the host computer is designed to receive when the terminal's function keys and cursor-movement keys are pressed. Since the Mac's keyboard lacks these keys, many terminal emulators display graphic equivalents on the Mac's screen. Others use ⌘-key sequences. The mainframe computer acts as if it were communicating with the terminal the Mac is mimicking.

Remote Control

Some communications programs can turn the Macintosh into a message center capable of exchanging files with callers. A business could use remote access features to allow employees traveling with portable computers to check in at any time and read messages from the home office. The employees could also update the boss on the progress of their business trips. Hobbyists use remote access to turn their Macs into *bulletin board systems*—homespun information services that other hobbyists can use to exchange messages and software.

(continued from page 88)

like using icons for common activities such as printing and sending or receiving files. Furthermore, the program's autopilot is the easiest to use of the programs I tested.

Getting inTouch

MacinTouch Software's *inTouch* is a complex program that offers a versatile autopilot and an excellent macro facility but is more difficult to use than *Smartcom II*. The best example of *inTouch*'s complexity is its Communications Command Language (CCL), which you use to type autopilot instructions. The terse nature of commands in CCL makes autopilot sequences more difficult to decipher than their *Smartcom II* counterparts (see Figure 3). The command **dial retry 10 delay "10"**, for example, tells *inTouch* to make up to 10 attempts to dial a number, waiting 10 seconds between each attempt. Although it's bothersome to type every command and refer to the manual for ones you've forgotten, *inTouch* does provide an editing window for creating CCL sequences and checks for typing errors and misspelled commands.

inTouch lets you create more macros and keep them better organized than any other Macintosh communications program I have tried. You can assign up to 63 characters to an on-screen button. You send the characters when you click the button. You can label buttons with short names such as "News" or "MAUG" to describe their contents. *inTouch* provides 32 such buttons; 8 buttons are available at a time. You switch between sets of 8 by clicking buttons labeled L1 (for "level 1") through L4.

inTouch also lets you use a macro to run a CCL program. For example, to browse through electronic mail or wire service news you might set up two autopilot procedures, one that begins capturing incoming text in a file and another that pauses the capturing process, and assign each procedure to a macro. You could selectively capture information by sending each macro when appropriate. You can even reset all 32 macro buttons within a CCL program, giving *inTouch* a virtually unlimited number of macros.

inTouch doesn't let you send macros using the keyboard; you must click the buttons on the screen. This limitation is unfortunate because life on line requires a lot of typing, and keyboard commands would enable you to perform common tasks, such as sending macros, without taking your hands off the keyboard.

For file transfers, *inTouch* works with the Xmodem and Crosstalk protocols. Unfortunately, *inTouch* is out of touch with the MAUG world: it doesn't recognize files in MacBinary format. Communications programs that recognize MacBinary can download MAUG files in a single step, avoiding a cumbersome file conversion procedure. A spokesperson from MacinTouch Software told me that a future version of *inTouch* will be able to recognize MacBinary files. Until then, people who regularly download programs from MAUG should use another communications program.

inTouch's excellent macros and advanced autopilot command language make the program ideal for people who frequently use complex information services such as CompuServe, The Source, and Dow Jones News/Retrieval, but who don't download MacBinary files. The program saves time by storing in macros the numerous commands needed to navigate through those services. But be prepared to spend some time learning the program's Communications Command Language to get the most out of *inTouch*.

(continues on page 92)

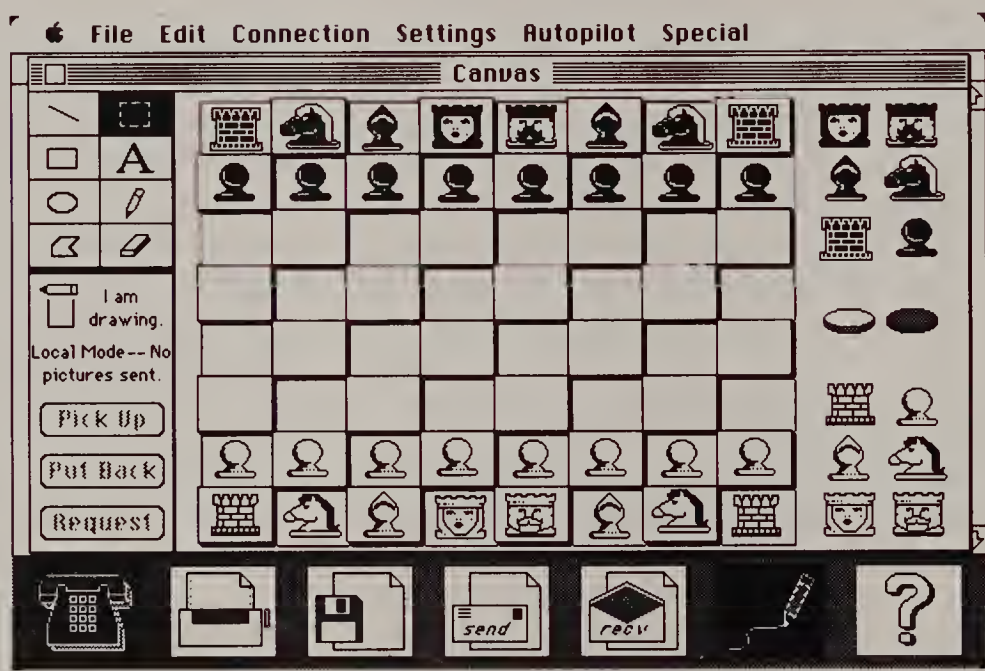

Figure 2
Smartcom II *offers a graphics "canvas" that lets two* Smartcom II *users with 512K Macs draw and exchange graphic images. As one person draws, the other sees the image appear on the screen. The second person can modify the image using the program's drawing tools.*

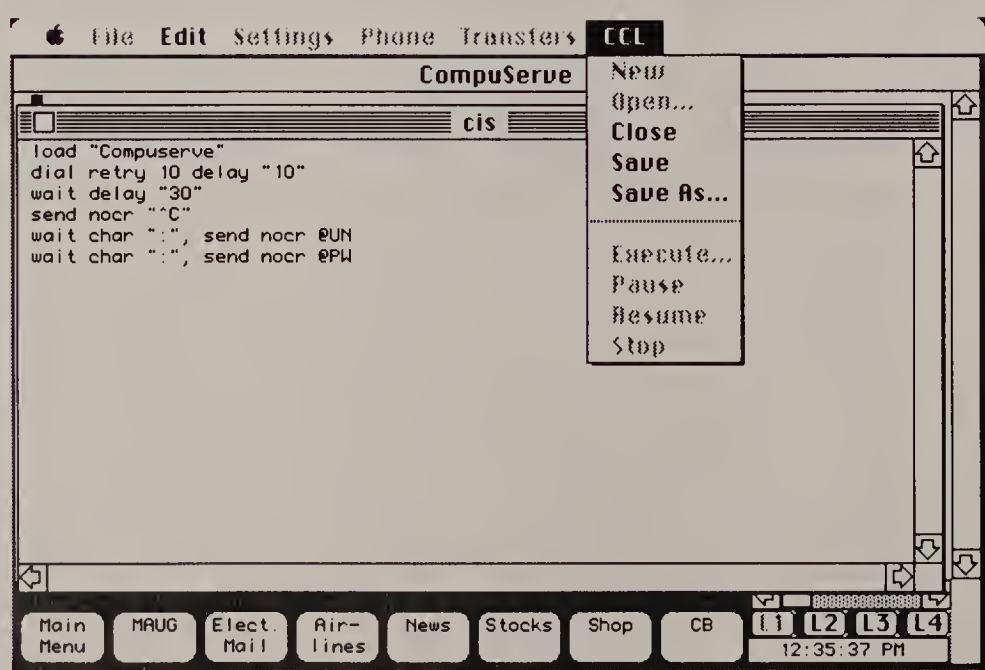

Figure 3
inTouch *requires you to type the text of Communications Command Language (CCL) sequences. CCL sequences are less easily understood than their* Smartcom II *counterparts. This sequence, for example, performs the same function as the autopilot sequence in Figure 1.*

Comparing Communicators

	MacTerminal	Smartcom II	Telescape	Red Ryder	inTouch
Autopilot Features					
Executes sequences at specific time	—	yes	—	yes	yes
Hides passwords in sequences	—	yes	—	no	no
Sends files within sequences	—	yes	—	yes	yes
Receives files within sequences	—	yes	—	yes	yes
Activates printer within sequences	—	yes	—	yes	yes
Adjusts settings within sequences	—	no	—	yes	no
Loads saved macros within sequences	—	—	—	yes	yes
Macro Features					
Maximum number of macros	—	—	10	10	32
Maximum characters in a macro	—	—	80	40	63
Autopilot sequences in macros	—	—	—	yes	yes
Control codes in macros	—	—	yes	yes	yes
Sends macros with ⌘ key	—	—	yes	yes	no
Sends macros with on-screen buttons	—	—	yes	yes	yes
File Transfer Features					
Sends text files	yes	yes	yes	yes	yes
Captures incoming text	yes[1]	yes	yes	yes	yes
Xmodem protocol	yes	yes	yes	yes	yes
MacBinary format	no	yes	yes	yes	no
Kermit protocol	no	no	no	yes	no
Hayes protocol	no	yes	no	no	no
Crosstalk protocol	no	no	no	no	yes
Convenience Features					
Views scrolled text	yes	yes	no	yes	yes
Selects and copies text to Clipboard	yes	yes	no	yes[2]	yes
Copies text in table form	yes	no	no	no	no
Pastes text to remote computer	yes	yes	no	yes[2]	yes
On-screen clock or timer	no	no	no	yes	yes
Prints incoming text	no	yes	no	yes	yes
Prints selected text	yes	yes	no	yes[2]	yes
Remote Access Features					
Sends and receives files	no	no	yes	yes	no
Menus for remote access	no	no	yes	no	no
Modems Supported[3]	Hayes	Hayes	Hayes, any	Hayes, any	Hayes, any

[1] Using *MacTerminal*'s Save Lines Off Top command, you can save text that scrolls off the top of the screen.

[2] These features are present only on the 512K version of *Red Ryder*.

[3] Hayes-compatible modems include Apple modems, recent Microcom MacModems, and Prometheus Products' Promodem. "Any" indicates that the program can control any intelligent modem, but you must first specify modem commands.

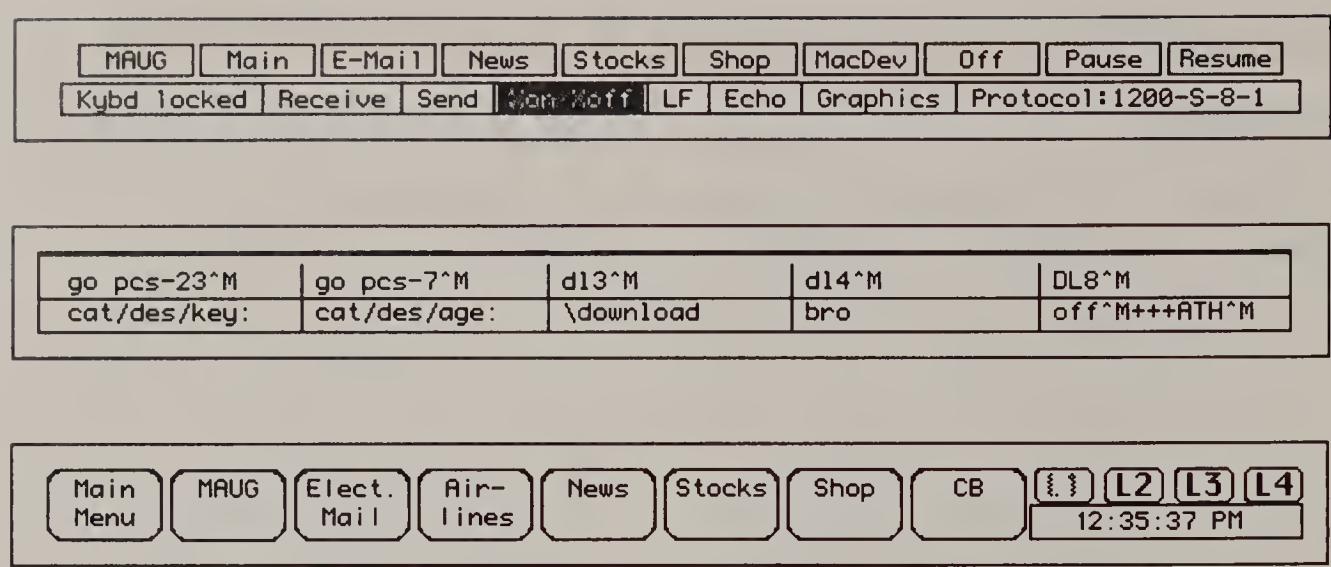

Figure 4
A macro comparison. Telescape *(top) lets you create labels to describe its ten macros: you send a macro by clicking its label. The bottom row of the display shows status information, such as the communications protocol.* Red Ryder *(middle) also lets you send macros by clicking labels but does not let you create labels for the macros. Instead, a portion of each macro's text appears as its label.* inTouch *(bottom) lets you create labels for its 32 macros. Eight macros are available at any one time; you switch between sets of 8 by clicking buttons L1 through L4.*

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Red Ryder

Red Ryder, a "shareware" program from FreeSoft Company, provides a sophisticated autopilot command language and good macros but isn't as easy to use as *Smartcom II.* Unlike *inTouch, Red Ryder* recognizes MacBinary files.

Red Ryder provides an autopilot language similar to *inTouch*'s but lacks an editing window for creating autopilot sequences. Instead, you create text documents with a word processing program that you convert to *Red Ryder* "procedures" with the Change Text to Procedure command. The only purpose of this conversion process is to change the file's icon and make it recognizable to *Red Ryder.* I was annoyed that I had to perform this extra step whenever I wanted to refine an autopilot sequence. If you find an error, you must convert the procedure back into a text file, correct it with a word processing program, and then reconvert it. Scott Norman, *Red Ryder*'s author, suggests using CE Software's MockWrite desk accessory to create autopilot files, since MockWrite lets you edit autopilot sequences without quitting *Red Ryder.*

Red Ryder's macro talents aren't as impressive as *inTouch*'s, but they're adequate for storing information service commands. As with *inTouch,* you click on-screen buttons to send a macro. However, you can't give the button a descriptive name such as "MAUG" or "Mail." Instead, buttons are identified with the first 13 characters of the macro itself (see Figure 4). As with *inTouch,* you can include the name of an autopilot procedure in a macro, causing that procedure to be executed when you send the macro.

If you have a modem that answers automatically, *Red Ryder*'s Host Mode lets you access files in your office Macintosh from your home, or vice versa. Choosing Host Mode from the Mode menu causes *Red Ryder* to wait for the phone to ring. When it does, and the modem has established a connection, *Red Ryder* waits for typed commands from the other computer, such as **sendx** for sending a file using Xmodem, or **recx** for receiving a file. I would prefer a menu that contained all the file transfer options rather than having to remember and type commands.

Red Ryder is best suited to members of MAUG and explorers of other information services who are willing to forego *Smartcom II*'s simplicity in exchange for macros and the ability to access files from a remote computer. *Red Ryder*'s only major shortcoming is the large amount of typing required to create autopilot procedures and the need for a separate word processing program.

But *Red Ryder* is inexpensive, and its shareware distribution method lets you evaluate the program before purchase. You can get a copy through user groups or MAUG; you pay $40 only when you decide to keep the program. Moreover, *Red Ryder* is frequently revised based on feedback from people who use it. A version with improved features for writing autopilot sequences is in the works and may be available by the time you read this.

Telescape

Mainstay's *Telescape* is like a car with cruise control but no windshield wipers: it provides luxury features not found in other programs yet lacks the conveniences that are standard equipment on the competition. *Telescape* stores parameters such as communications settings, phone numbers, and macros differently than the other programs I tested. Instead of storing each set of parameters as a separate document, *Telescape* stores 20 parameter sets together in a single directory. While 20 entries should be adequate for most people, active communicators may require a larger on-line black book.

Telescape lacks an autopilot. You can work around this shortcoming somewhat by using the program's "smart" macros, which wait for specific incoming text before sending text. You could, therefore, create an automatic sign-on macro that would operate identically to an autopilot procedure. Nevertheless, *Telescape*'s macros lack the power of autopilot sequences. For example, you can't create macros that automatically start and stop saving data to a disk file. As with *Red Ryder,* you send a macro by pressing ⌘ along with a number or by clicking on-screen buttons.

Of the programs reviewed here, *Telescape* is the most versatile terminal emulator. Its Terminal Emulation Language creates *terminal definitions*—tables that specify how *Telescape* interprets the specialized commands a specific terminal receives and sends to the host computer. *Telescape* comes with definitions for several terminals, and Mainstay reports that definitions for more than 50 other terminals are available.

Communicating with Accuracy

The rules that allow error-free file exchange between computers—despite potentially noisy phone lines—are called *file transfer protocols.* Numerous error-checking protocols exist. Regardless of the protocol, your communications program should be able to work with the protocol used by the computer at the other end.

The simplest file transfer method is a *text transfer,* or *ASCII transfer.* This method has no error-checking protocol. On the receiving end, the text scrolls onto the screen and isn't saved unless you instruct the communications program to save incoming text on disk. Text transfers are suitable for sending text-only files created with a word processor. If static on telephone lines scrambles some of the text, chances are the person at the other end can still decipher the message.

Text transfers aren't suitable for sending *binary files* such as *MacPaint* documents, word processing documents with font and formatting information, or programs. One lost or garbled bit can make a mess of a *MacPaint* masterpiece or render a program useless. Though specially converted binary files may be exchanged through text transfers, accurate exchanges depend on error-checking protocols like Xmodem.

The Xmodem protocol sends a file in blocks, with each block containing error-checking information. If the receiving computer reports that a block contains an error, the sending computer transmits it again. Since the file exchange is monitored and erroneous data retransmitted, files exchanged with Xmodem have a 99.6 percent or better chance of arriving intact. Because the response time of mainframe computers such as CompuServe's slows during peak periods, some programs let you specify a lengthy *time-out* value to allow CompuServe some slack time and avoid time-out errors during downloading.

Until recently, binary files downloaded from mainframe computers had to be converted by a utility program called BINHEX before they could be used (see "Shopping the Electronic Software Shelves," *Macworld*, June 1985). This extra step was required because Macintosh binary files have two components—a *resource fork* holding information such as rulers and font information, and a *data fork* containing the file's data. CompuServe's computers cannot store files in the Macintosh format.

A special format called MacBinary has eliminated the need for BINHEX conversion when transferring Mac files. A downloaded MacBinary file is ready to use immediately. The MacBinary format even transfers the file's original name, as well as its creation and modification dates. MacBinary files are stored on CompuServe with the extension .BIN after the file's name. If you intend to exchange binary files through MAUG, a communications program that recognizes MacBinary saves you a lot of trouble.

Callers can upload or download files as well as read and leave messages. The program's remote access feature makes it more suitable for use as a bulletin board system than *Red Ryder.* The menus bulletin board callers see are easy to use (see Figure 5), and the message system lets you inform callers of the latest software additions to the bulletin board.

Some of *Telescape*'s capabilities are unique, but its omissions are significant. The program lacks a vertical scroll bar for displaying text that has scrolled off the top of the screen. Consequently, scrolled text is consigned to oblivion unless you previously specified that incoming text should be saved on disk, in which case you can review it with a word processor. A command for printing incoming text is also missing, though you can print the screen by pressing ⌘-Shift-4. Finally, *Telescape* can't copy incoming text to the Clipboard or paste text on the Clipboard to the remote computer.

If you need to emulate a terminal that the other programs can't, or if you want to operate a bulletin board system, *Telescape* is the best choice. Otherwise, the other programs I evaluated are more serviceable and make better general-purpose communications software. *Telescape* has promise, but it should provide better convenience features.

The Envelope, Please

All the programs I've reviewed are capable communicators, but *Smartcom II* is my favorite. Hayes has put a lot of effort into making *Smartcom II* powerful yet easy to use. Its autopilot facility is by far the simplest to use of the programs reviewed here, yet it sacrifices nothing in terms of capability. I would be willing to trade the program's graphics for a good macro facility, however.

Red Ryder ranks a close second. Its compatibility with MacBinary, its macros, and its autopilot language make it ideal for downloading and for exploring information services. It isn't as easy to use as

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Circle 134 on reader service card


```
Telescape Message Service
-------------------------

<R>ead ...... Read Message
<L>eave ..... Leave Message
<D>ownload .. Files or Applications
<U>pload .... Files or Applications
<C>hat ...... Chat With Sysop
<G>oodbye ... Terminate Session

Command: _
```

Figure 5
Telescape *lets you turn the Macintosh into an electronic bulletin board with menus, such as the one shown, that callers can use to exchange software and messages.*

Smartcom II, and its two-step process for writing autopilot sequences is annoying if you don't use MockWrite, but the program is an excellent value.

inTouch has excellent autopilot and macro powers, but it must be able to recognize the MacBinary format to be useful to people who want to download programs from MAUG.

Telescape needs some work before I can recommend it. I like its remote access feature and the versatility of its Terminal Emulation Language, but I wish the program had some of the conveniences common to most Mac communications programs.

Finally, keep in mind that there are other communications programs available. At least two modem manufacturers supply communications programs with their products: the Prometheus Promodem comes with the *ProComm-M* program, and the Microcom MacModem includes its own software. If you haven't purchased a modem, one of these modem and software combinations might be a good choice. Both *ProComm-M* and MacModem have autopilots, though MacModem can't check file transfers with the Xmodem error-checking protocol. Because Xmodem is used for MacBinary file transfers, MacModem can't transmit or receive files in MacBinary format.

If you're on a tight budget, several public-domain or shareware communications programs are available in MAUG's telecommunications data libary. *MacTep* and *Freeterm* are the best known; they don't have macro or autopilot facilities, but they send and receive files capably.

Smartcom II, inTouch, Red Ryder, and *Telescape* are opening the doors to easier and more economical communications. Autopilots and macros save time by letting you maneuver quickly through large information services. Terminal emulation lets businesses unite the Macintosh with mainframe computers, lightening the load on data processing departments. Best of all, novices who are understandably intimidated by cryptic commands and BINHEX conversions can brush these adversaries aside and embark on a communications adventure. □

Jim Heid is a Contributing Editor of Macworld.

Smartcom II
Hayes Microcomputer Products, Inc.
5923 Peachtree Industrial Blvd.
Norcross, GA 30092
404/449-8791
List price: $149

inTouch
MacinTouch Software, Inc.
224 S. Deerfoot
Houston, TX 77057
713/367-7413
List price: $149.95

Red Ryder
The FreeSoft Co.
10828 Lacklink
St. Louis, MO 63114
314/423-2190
List price: $40 (on approval)

Telescape
Mainstay
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Agoura Hills, CA 91301
818/991-6540, 818/991-5037 by modem
List price: $125

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This ad created entirely with Fluent Fonts™ using MacPaint,™ then printed on the Apple LaserWriter™ and shown reduced.
Circle 165 on reader service card

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Robert C. Eckhardt

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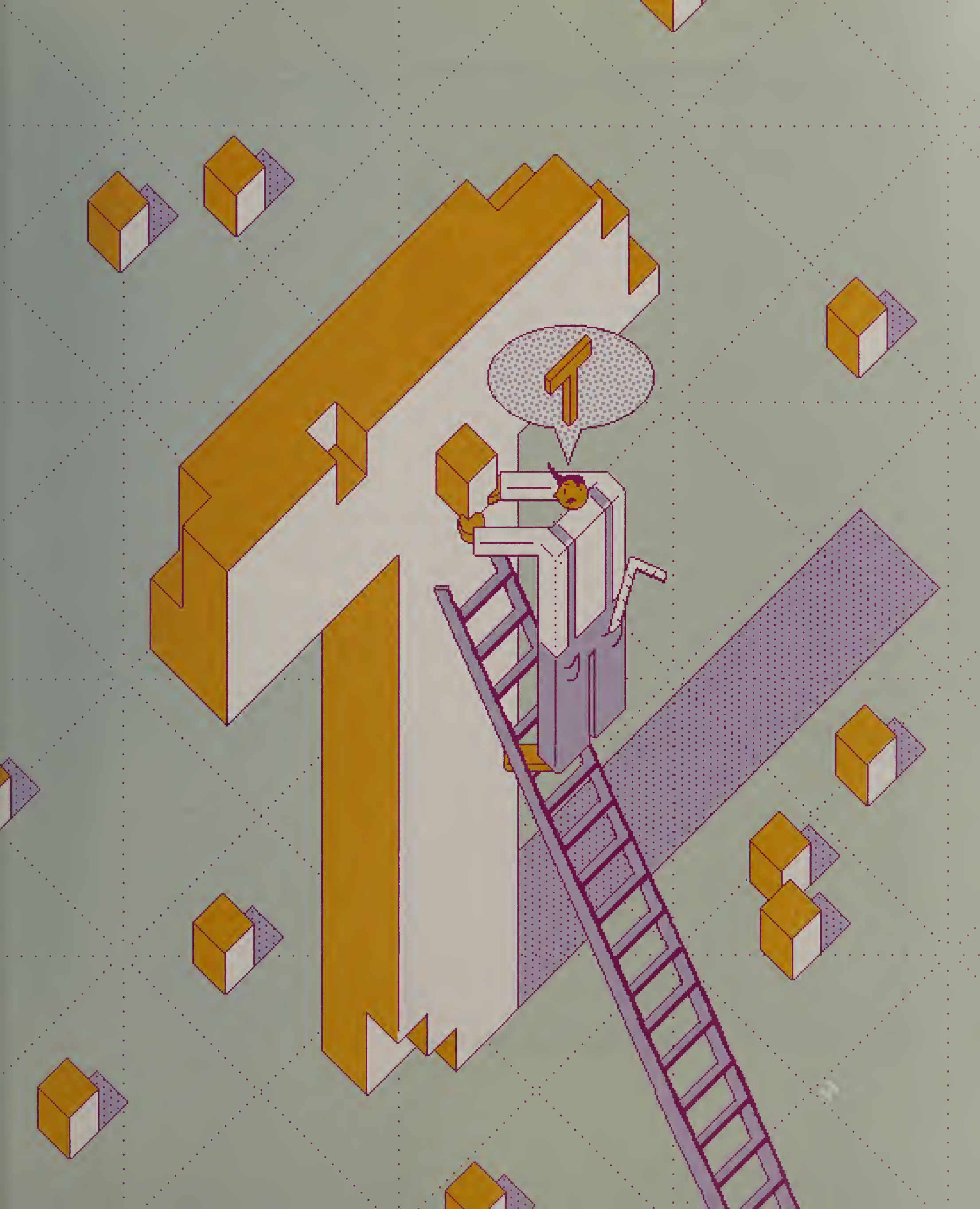
The Macintosh's Font Mover lets you move fonts in and out of the System file with a few mouse clicks. Until recently, however, modifying a font—adding



characters or changing the appearance of existing ones—required Apple's Resource Editor (ResEd), a complex and occasionally unreliable program.

With Altsys Corporation's *FONTastic* you can move characters from one font to another to create a custom font containing all the special characters you frequently use, or you can convert an entire font to an italicized version by slanting letters to the right. You can even create new fonts by stretching and squeezing existing ones.

Before you start modifying fonts, a note on *FONTastic*'s performance and memory is in order. I suggest that on a 512K Macintosh you use a RAM disk containing *FONTastic* and the System or fonts file you want to modify. After you alter a font, copy it from the RAM disk back to the floppy disk it was on. If you have a 128K Mac, beware: *FONTastic* can run out of memory when you work with large font sizes or perform modifications, such as stretching a character, on an entire font. During a few font editing sessions, *FONTastic* crashed or refused to save my work, so save often to avoid trouble. If *FONTastic* alerts you about insufficient memory, quit the program, restart it, and try again.

Different Keystrokes for Different Folks

When you need to move characters around within a font, *FONTastic* handles the job well. Unless you completely rearrange the Macintosh's keyboard layout, most character-moving operations involve making often-used symbols or special characters more accessible or assigning them to easily remembered key sequences. Let's look at one such font-shuffling move—relocating the copyright symbol (©) in 12-point New York from its home, Option-g, to a more memorable location, Option-c.

FONTastic opens with a font selection window resembling the one in Apple's Font/DA Mover. The fonts in the System file appear in one scroll box, while another scroll box lets you access separate font files. You begin by selecting the font and size you want to edit, in this case New York-12. Next, click the Edit button to open the font for alteration. Double-clicking on the font's name also opens the font.

Opening a font displays the Sample and Font windows (see Figure 1). The Sample window shows some prose in the selected font, while the Font window, titled with the selected font's name, displays a 16- by 16-cell grid containing letters, numbers, and symbols. The Font window provides two views: the System view and the Actual view. The System view displays the characters in the Chicago font and in the positions designated by the System file. Empty character cells, those that contain no characters in the selected font, display a small, hollow rectangle. The Actual view shows characters in their current form, with any alterations you make. In the Actual view, empty cells are denoted by gray squares.

Use the System view when you get confused or make a mess of your work. If you change a character beyond recognition, the System view can remind you what the character was. The System view is also handy when you work with picture fonts such as Cairo. By switching between System and Actual views, you can determine which picture corresponds to each character position.

The Editing Table

To move the copyright symbol, first locate its current position and its destination. Some searching through the Font window's System view reveals that the symbol's cell is located in the 11th column across and the 10th row down. To locate the symbol's new home—the cell corresponding to the Option-c key sequence—make sure the Font window is active and type Option-c. The Font window cell located 9 columns across and 14 rows down is highlighted, and an editing window opens containing a lowercase *c* with a cedilla (ç), which is the character produced when you press Option-c. Since you don't need the editing window to move a character, close it. The cell remains selected.

Now you're ready to move the symbol.

- Choose Cut from the Edit menu to store the ç. Then select an empty cell—one containing a rectangle. Paste the ç there for safekeeping.
- Select the copyright sign, cut it, and paste it into the cell where the ç was.
- Cut the ç from its temporary storage cell and paste it where the copyright sign was. You can also remove the ç by selecting it and choosing Clear from the Edit menu, or you can paste the symbol elsewhere.

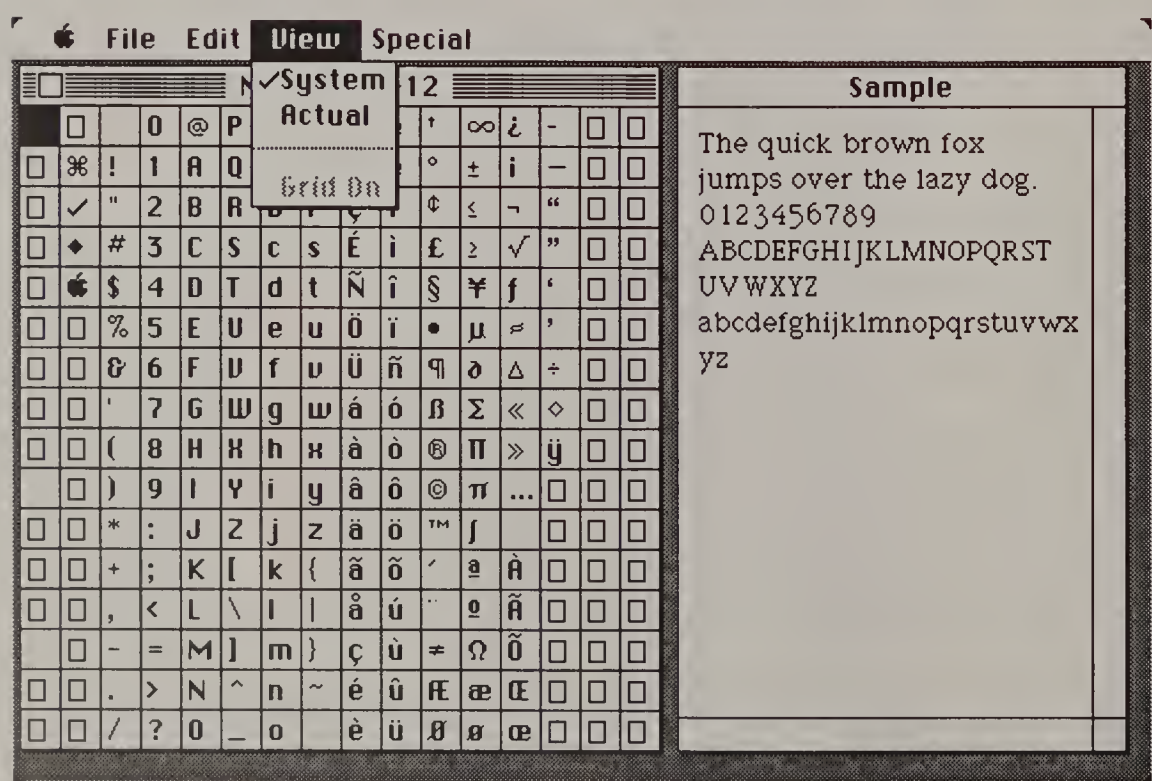


Figure 1
Opening a font opens the Sample and Font windows. The Sample window shows some classic prose in the open font. The Font window, titled with the open font's name, displays a 16- by 16-cell grid containing letters, numbers, and symbols. Character cells for which no characters exist show a small, hollow rectangle.

• Choose Save from the File menu to preserve the new arrangement. Since the font you worked on is in the System file, you can quit *FONTastic* and use the font immediately. If the font were in a fonts file, you would place the font in the System file with *FONTastic*'s font-moving commands before you quit.

To test the modified font, activate the Sample window and type Option-c. Whether the Sample window is active or not, *FONTastic* automatically updates it to reflect your editing. If the characters corresponding to Option-c and Option-g had already been typed, you would have been able to see the results of the swaps as they occurred.

As another font-shuffling project, try moving characters from other fonts into the empty character cells of your favorite font. If you prefer New York but often use Geneva's math symbols, for example, copy the symbols to New York. Open Geneva, locate and copy one of the special characters, then close Geneva and open New York. Finally, select a position for the symbol in the Font window, and paste. Repeat the process for the other math symbols.

Don't forget that your alterations apply only to the font size that you opened. New York-24, for example, does not contain changes you make in New York-12. And since the Imagewriter usually uses a font double the size of the actual text when printing in high quality, the changes do not appear on paper unless you change New York-24. The moral? To avoid unpleasant surprises, always modify all the sizes of a given font in the same way, at the same time.

Opening the Editing Window

For character modifications more ambitious than moving characters between fonts, you must enter the editing window, which is the world of font FatBits (see Figure 2). The editing window shows characters at eight times their actual size and provides several *MacPaint*-like tools for customizing. A pencil lets you add and remove single dots, an eraser cleans large areas, and a marquee lets you select part or all of a magnified character.

Besides magnifying characters, the editing window lets you control important character properties. Sandwiched between the editing tools and the magnified display is a narrow column containing two arrows and two bars. The upper arrow points to the *baseline,* the imaginary line on which all capital letters sit. The bar above it marks the *ascent,* the height of the tallest characters. The bar below the baseline marks the *descent,* or the length of the lower parts of letters such as *g, j,* and *q*. The lower arrow controls the *leading,* the space between two lines of text. The two controls at the bottom of the editing window control the space that appears before and after a character. The width values, unlike the ascent, descent, and leading, are set individually for each character in a font. (For more typographical background see "A Face for All Seasons," *Macworld,* February 1985.)

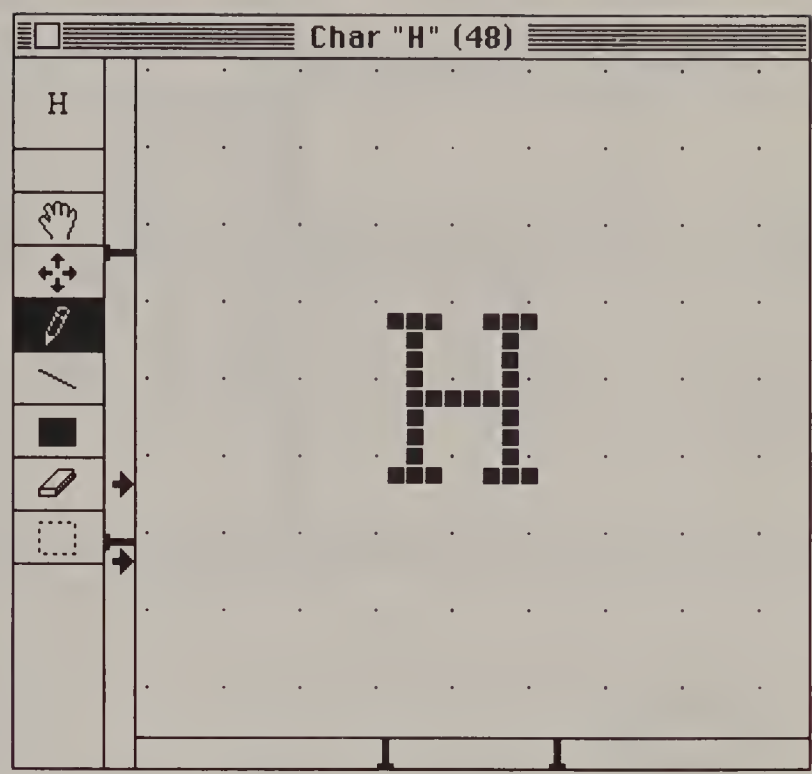


Figure 2
The character editing window shows characters at eight times their actual size and provides several MacPaint*-like tools for customizing. A pencil lets you add and remove single dots, and a marquee lets you select part or all of a magnified character. You can also adjust a character's width and the font's leading.*

Leading and Kerning

If you adjust the ascent and descent of existing fonts, you'll probably chop off the tops or bottoms of some characters. You can, however, adjust the leading without risking character damage. In fact, the ability to change the amount of space between lines is a valuable design tool that isn't available in many Macintosh applications. Most Macintosh fonts come preset to add one point of leading between lines. You can decrease or increase that value in one-point increments by dragging the *FONTastic* editing window's leading control up or down. To determine the amount of leading a given font uses, open the font and choose About FONTastic from the Apple menu.

Another character adjustment you can make extends a character beyond the width designated by the width controls. That means characters can overlap, a condition that you'd think would be undesirable but that can significantly improve the appearance of certain letter combinations, such as *To, Yo,* and *TA*. Since the capital *T* is a natural for *kerning,* as the overlapping is called, let's create a special *T* that you can use when appropriate.

• Open a font, locate the capital *T,* select it, and choose Copy from the Edit menu.

• Make sure the Font window is active, then type Option-t to store the kerned *T* in that slot. When the editing window opens, close it. You'll see that the Option-t slot—which in the System view contains a dagger, or †—remains selected. Store the *T* in the slot with the Paste command.

• Drag the right-hand width control to the left. The distance you drag depends on the font you're editing and what size it is. With small sizes one notch is sufficient, while larger sizes can be decreased by two

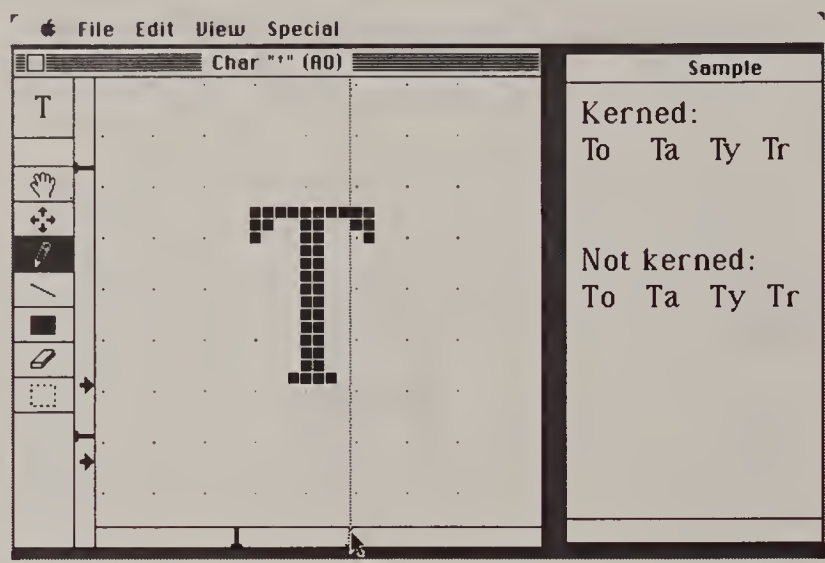


Figure 3
Here, the width of the letter T *is decreased so that characters like* o, e, *and* a *tuck under it for a better appearance. The Sample window shows the spacing difference between the kerned and normal-width* T. *The modified* T *has been assigned to the Option-t key sequence.*

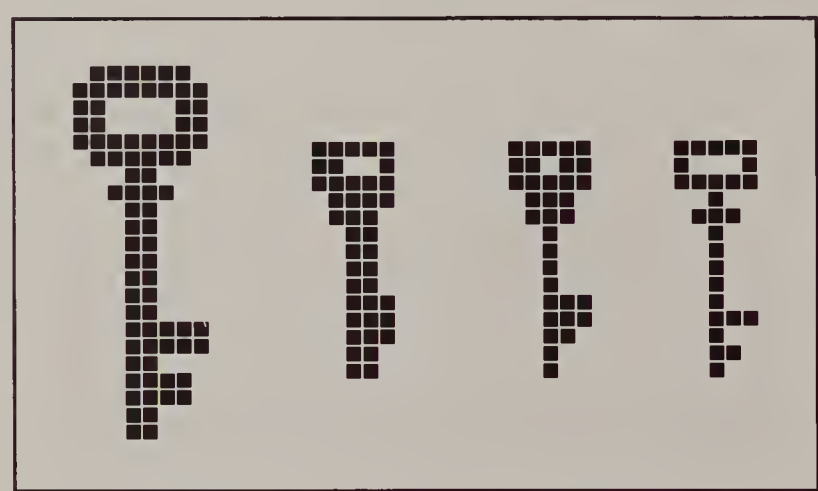


Figure 4
The 18-point Cairo key must be rescaled to fit into 12-point New York. Two transfer methods produce different scaling results, shown by the two middle keys. Some touching up in the editing window results in the smaller but reasonably accurate key on the far right.

or three notches. Check your work by activating the Sample window and typing Option-t followed by a round character such as *o* or *e* (see Figure 3). When you're satisfied with the spacing, save the modified font. In the future, when you type a character combination such as *To, Ta, Ty,* or *Te,* use the kerned *T* instead of its normally spaced sibling by typing Option-t. But don't forget to modify the other sizes of that font to avoid problems when printing in high quality on the Imagewriter.

Smoothing Seedy Characters

You use the editing window's pencil and eraser tools when copying characters between fonts of different sizes. Consider the task of moving one of 18-point Cairo's pictures into 12-point Geneva. *FONTastic* automatically rescales the picture, but rescaling is accomplished mathematically—and not always artfully—so the results can be ragged.

Two methods exist for moving characters between dissimilar font sizes. You already know one method—select the Cairo character in the Font window, copy it, and then paste it into Geneva's Font window. You can often get better results, however, by opening the character's editing window, selecting the magnified character with the marquee, and then copying your selection. Next, close Cairo, open Geneva, and open the cell where the character is to reside. Finally, paste the magnified character into the editing window of the specified empty cell. The resulting character often retains more detail than one pasted directly into the Font window (see Figure 4).

Styling and Scaling

For major font makeovers, use *FONTastic*'s styling and scaling commands. Your style options include the usual choices—bold, italic, underline, shadow, and outline—plus three unusual ones. The Expand option increases the space between characters. Condense decreases the space and often improves the appearance of large type sizes. The Invert option gives you white characters on a black background.

Creative use of the style options can improve some styles' appearance. For example, to produce an italicized New York that looks better than the italic the Macintosh creates, make the Font window active and choose Select All from the Edit menu. Next, choose Style from the Special menu and select the Italic option. Finally, clean up the ragged edges with the editing window's pencil and eraser.

Another *FONTastic* application is to create new sizes and shapes for existing fonts with the Special menu's Scale Font command. *FONTastic* rescales the entire font, even if you highlight only a single character or group of characters. The program lets you scale both vertically and horizontally, independently of one another, into either larger or smaller sizes.

When you create new sizes for existing fonts, specify the same horizontal and vertical scale values in the Select Scale Factors dialog box to maintain the font's original proportions. If you like the Seattle font, for example, which is supplied in 10-point and 20-point only, rescale the font into other sizes. You can also produce a wide or tall font by making one value more or less than the other. For a tall version of the font, use a larger horizontal value. For a wide font, use a larger vertical value. After scaling, sand the rough spots and save the font.

Closing the Type Drawer

Tailoring fonts to your applications can make using the Macintosh more convenient, and it enhances your ability to convey information. After you rearrange some special characters, change leading or width values, and scale existing sizes into new ones, you might want to try your hand at designing a font from scratch. With *FONTastic* and knowledge of font-editing basics, you can create fonts that are just your type. □

Robert C. Eckhardt is a free-lance writer and editor.

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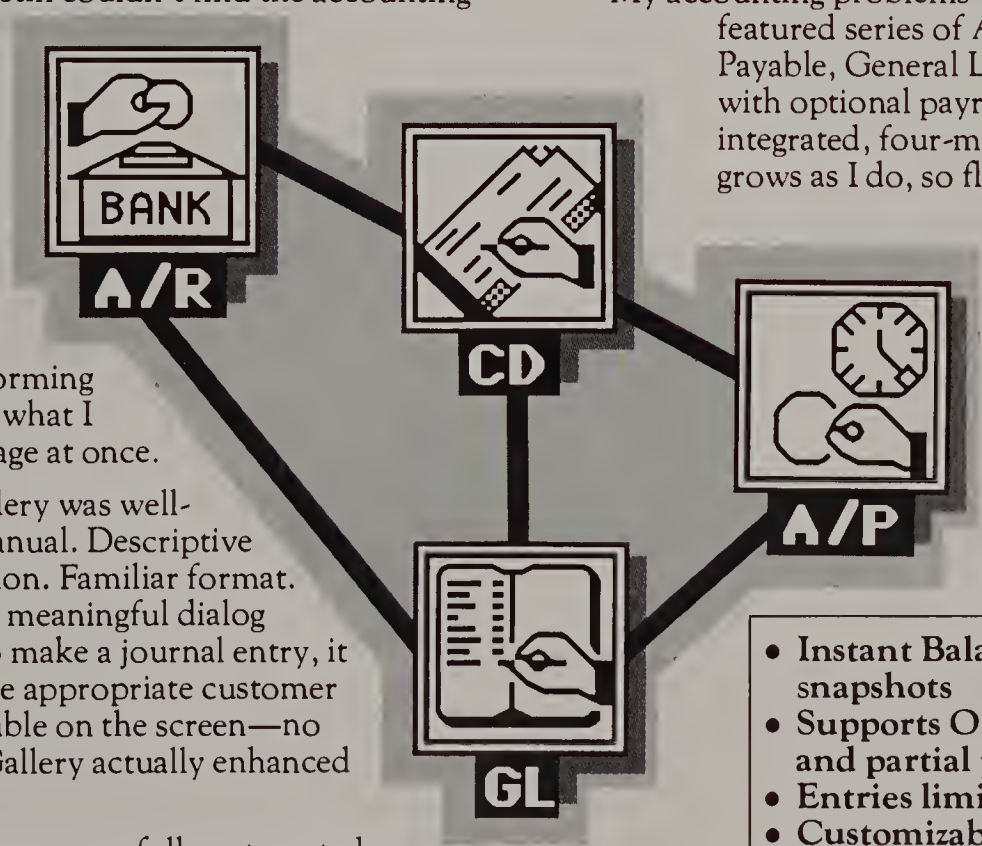

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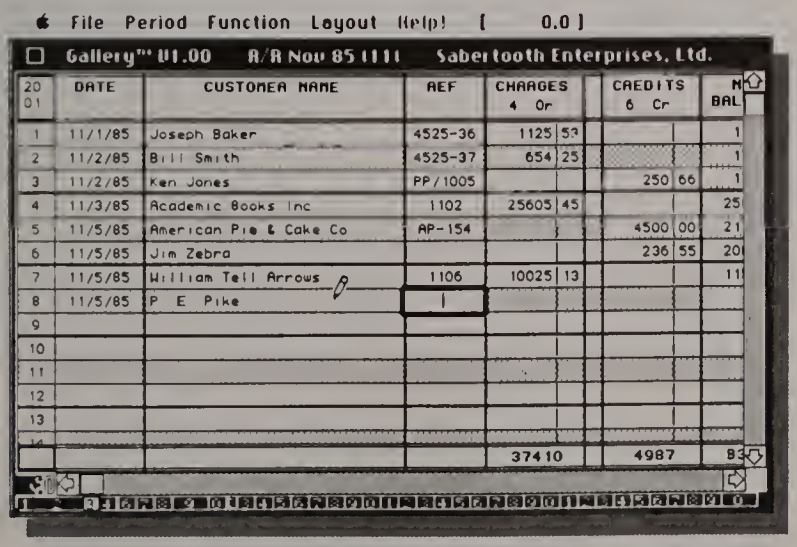

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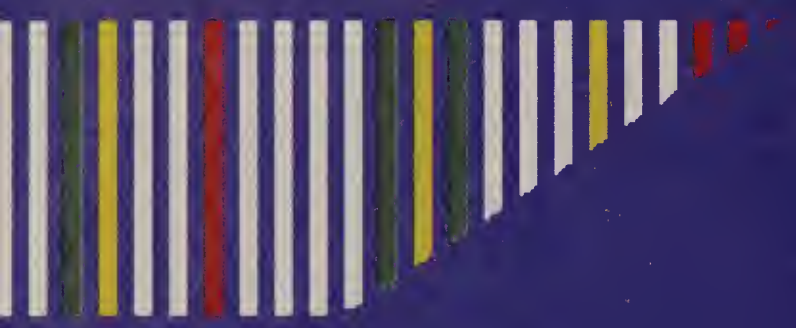
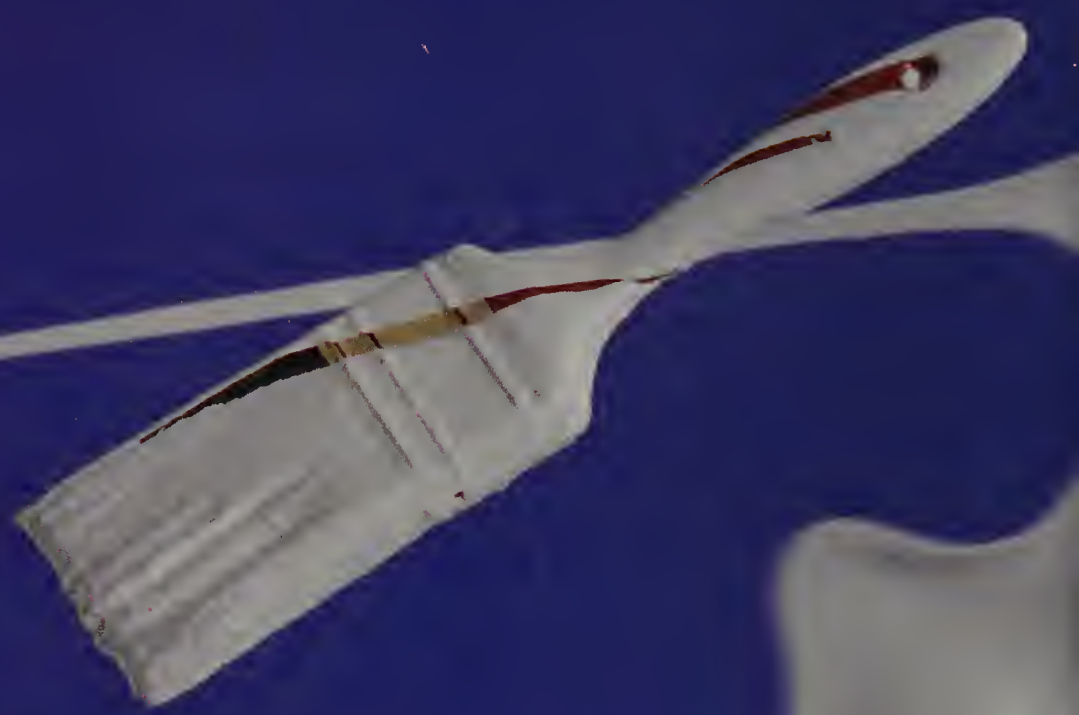
Graphics by Phone





You can send MacPaint and MacDraw pictures quickly over the telephone lines

Gordon McComb

When you're in a hurry to ship a MacDraw *document or a digitized* MacPaint *picture to an associate, you can send it by courier or express mail. But if your associate has a Macintosh and you each have a modem, there's a better way. Zap the picture by phone, and it gets there today.*

Transmitting *MacPaint* or *MacDraw* documents by modem is surprisingly simple with a communications program like *MacTerminal,* which takes care of most of the technicalities for you. Any other communications program that can perform binary file transfers—as opposed to ASCII, or text-only, file transfers—does the job. The file transfer is simplest if both sender and receiver use the same program.

Before you send a *MacPaint* or *MacDraw* document over the telephone, connect the modem to the Macintosh. Then start *MacTerminal.*

Sending graphics documents, which are stored in binary format, is different

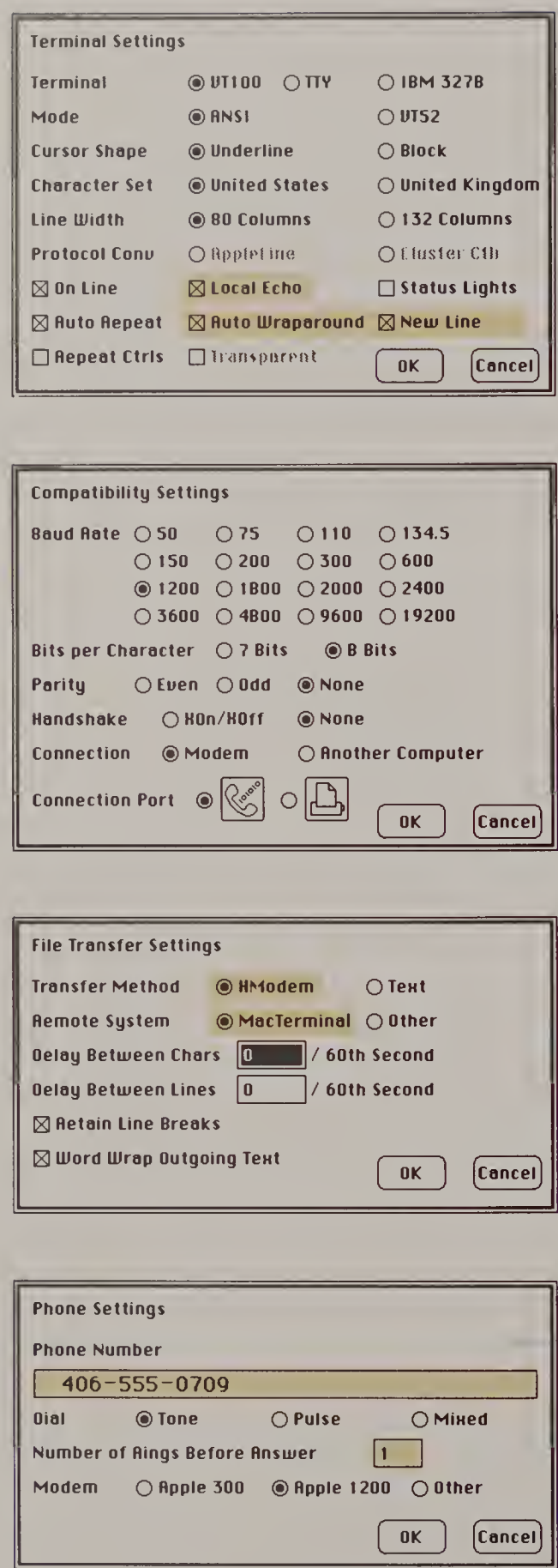


Figure 1
Before transferring MacPaint *or* MacDraw *documents, change* MacTerminal's *default settings as shown here. The default settings that need to be changed are highlighted.*

from sending text files. But *MacTerminal* can easily send the binary-format *MacDraw* or *MacPaint* pictures once you make a few changes to the default *MacTerminal* settings (see Figure 1).

First choose Terminal on the Settings menu. Click Local Echo, Auto Wraparound, and New Line to turn those features on. Next select Compatibility on the Settings menu. Set the baud rate so that it matches that of the remote, or receiving, modem. Select either the modem or the printer as the connection port, depending on where your modem is connected. Choose File Transfer on the Settings menu and select Xmodem as the transfer method and MacTerminal as the remote system. Choose Phone Settings from the Phone menu, and enter the telephone number of the remote computer. Enter 1 as the number of rings before answer.

Sending the File

Before you send a graphics file, make sure that the system at the other end is set up to receive a binary file. A quick telephone call can clear up any problems. Both you and the person to whom you're sending the picture should double-check your Terminal, Compatibility, and File Transfer settings. If everything checks out, hang up and place the call through the modem.

Once you establish contact with the other Macintosh, you can converse via the keyboard to make sure the communications link is working properly. When you're ready to send the *MacPaint* or *MacDraw* document, choose the Send File command from the File menu. Select the document you want to send from the dialog box that appears. If the document is in the external disk drive, use the Drive and Eject buttons so the Mac can find the desired file. When you click OK, the document is sent automatically. The person at the receiving end doesn't have to do a thing.

During the transfer, a dialog box appears on both screens, telling you and the person at the other end how large the file is and how much more remains to be transmitted (see Figure 2). The gauge that appears in the dialog box shows you the progress of the file transfer. At no time should the gauge indicator stop moving for more than 30 seconds. If the indicator stops, wait 30 seconds and then press the

	Document Transfer Times (minutes)		
Size of Document	**300 bps**	**1200 bps**	**2400 bps**
5K	3.00	.75	.37
10K	6.00	1.50	.75
15K	9.00	2.25	1.10
20K	12.00	3.00	1.50
30K	18.00	4.50	2.20
40K	24.00	6.00	3.00
50K	30.00	7.50	3.75

Waiting for Baudot
A comparison of the calculated times required to transfer a document at three transmission speeds (baud rates). Actual transmission times may vary due to the quality of the phone lines used.

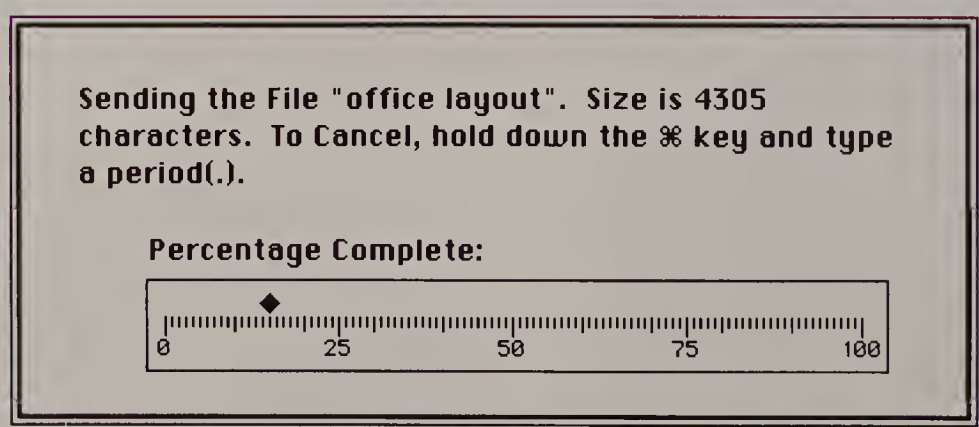


Figure 2
Once you begin a file transfer, a dialog box displays the name of the file and its size. The gauge shows the progress of the file transfer. At 1200 bits per second, transferring a 15K MacPaint *document takes just over 2 minutes.*

How Large Is a MacPaint Document?

The bigger and more complex a *MacPaint* picture, the larger its file. A blank *MacPaint* document takes up about 1K, while a complex document can be as large as 58K. You almost never see a *MacPaint* document that large, however, since the program uses a data compression technique to save disk space.

Because of the way the compression technique works, more data is packed on a disk when a picture is made up of patterns and solid blocks–white or black–rather than random splotches of paint. On the average, I found that hand-drawn *MacPaint* pictures, especially those containing filled shapes, usually take up between 10K and 15K. Pictures created with a video digitizer–like the Koala MacVision–are two to four times as big.

As a rule of thumb, the Macintosh takes 9 seconds to transmit 1K of data at 1200 bits per second (bps). On that basis, transmitting a 10K *MacPaint* picture takes approximately 1½ minutes. At 300 bps the same 10K document takes 6 minutes to transmit. These averages include the 10 to 20 percent overhead that *MacTerminal* requires for Xmodem communications.

Of course, if you are lucky enough to own a 2400-bps modem, you can slash the 1200-bps transmission times in half. As you might guess, however, the Macintosh on the other end must also be equipped with a 2400-bps modem. See the table "Waiting for Baudot" for a comparison of *MacPaint* transfer times.

⌘ and period keys simultaneously. Try to contact the other Mac by typing a few *hello's*. If there is no response, assume that you've lost the connection, and try again.

A *MacPaint* or *MacDraw* document sent via telephone contains more than picture information. It also includes the data required by the Macintosh to create the entire file, including the document's name, its icon, any edited patterns, and even the comments you entered with the Get Info command. In other words, sending a graphics document with *MacTerminal* is like copying a document from one disk to another. The transferred copy is a duplicate of the original.

Once the file is sent, *MacTerminal* returns control to you and the person at the other end, where the file is automatically saved on the *MacTerminal* disk. After the transfer, you and your associate can talk via the keyboard or simply hang up. When the person at the other Mac quits *MacTerminal* and goes back to the Finder, the icon of the graphics document received appears on the desktop, ready to be opened with *MacPaint* or *MacDraw*.

The Bulletin Board Alternative

If you can't coordinate a time when you and your associate can transfer a file, a bulletin board or an information service is an alternative to telephone tag. Although most services can't receive binary files directly, a growing number are adding the ability to receive files in a format known as MacBinary. MAUG on CompuServe uses the MacBinary format to allow you to upload and download binary files such as programs and formatted documents to and from MAUG's public-domain data libraries. However, since MAUG isn't intended for private mail and since CompuServe's EasyPlex mail service can't receive MacBinary files, you have to either rely on a private bulletin board service that uses MacBinary formats to act as an intermediary or convert your graphics file to ASCII.

To transfer a *MacPaint* or *MacDraw* document to a service that can't receive binary files, you have to convert the graphics file to ASCII format using a utility program called BINHEX, available from CompuServe's MAUG. Then you can send the converted file to the bulletin board or information system. After your associate downloads the file, it must be reconverted to binary format using BINHEX.

If you upload a graphics file to a service that can receive files in MacBinary format, you don't need to go through the BINHEX conversion, but you and your associate need to use a terminal program that can send and receive files in MacBinary format, such as *FreeTerm, Red Ryder* versions 5.0 and 6.0, *Smartcom II* version 2.1b, and *Telescape*. Future versions of *MacTerminal* are also expected to handle MacBinary files.

No matter what communications method you choose, once you become familiar with the procedure, you'll find that sending an average-size *MacPaint* picture at 1200 bits per second takes less than 10 minutes, including the time required to set up *MacTerminal,* establish the phone connection, and send the file. Neither courier nor express mail is as fast or as cheap. □

Gordon McComb is a Contributing Editor of Macworld.

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The Muppet master himself, Jim Henson, and Kermit join the rest of the Muppet menagerie (depicted in the mural). Henson believes the Macintosh's visual style makes it ideal for children's software.

The Muppets Meet the Macintosh

Jeffrey S. Young

You know you've entered a different world the moment you reach the foyer of the Henson Associates offices. Located in an appealing Georgian townhouse on the upper east side of Manhattan, the office would resemble any upscale bank branch except for the full-wall mural showing 30 years worth of Muppets sitting in a theater, their eyes watching you as if you were on stage. Or maybe it's the illuminated stained glass vista of Kermit sitting on a lily pad and playing the banjo. Or the giant copper *ha!*—for Henson Associates—embedded in the marble floor.

The combination of whimsy and professionalism that pervades the Henson Associates building also characterizes the people who work behind the scenes bringing to life the furry, fuzzy puppets you see on television and in movies. Henson's team consists of an extensive network of creative people working around the globe, aided by an assortment of computers. The computer systems include sophisticated VAX minicomputers that guide the movements of puppets at the Sesame Place theme park in Pennsylvania. Digital radio-control devices known as "waldos," designed by Muppet electronics whiz Faz Fazakas, enable puppeteers to manipulate remote characters with all the finesse of a hand puppet. And the Macintosh plays a prominent role in the day-to-day operations of Henson's Muppet empire.

You can find Macs on a number of desks in the Henson offices. For example, associate producer Ritamarie Peruggi uses a Macintosh for scheduling and coordinating the elements of the Henson Associates children's television series, "The Little Muppet Monster Show." With 13 episodes in various stages of development to track, she ended up designing her own production calendar with *MacDraw*. Whether she's in her office in New York or at the editing facilities in Hollywood, she can check the progress of the series at a glance.

Compared to "The Little Muppet Monster Show," Henson Associates' HBO series "Fraggle Rock" is an even more complex production. Artists, writers, and producers collaborate from various locales around the world. The two head writers live 8000 miles apart—in southern California and Wales. The show is shot in Toronto, animated sequences are created in Hollywood, administrative details are handled in New York, and Jim Henson might be anywhere around the globe. The company manages to keep in touch via modems through an international commercial electronic mailbox system called Dialcom. Henson himself is one of the prime users of the system. While in London working on a Muppet movie, he used his Macintosh to read messages, memos, scripts, and schedules sent to his Dialcom mailbox.

An author of several Muppet books, Louise Gikow describes the advantages of Dialcom. "By using the electronic mailboxes, we can all communicate instantaneously, revise scripts, and work out problems without having the one-day wait of overnight express mail services. Also, the relationships we have communicating electronically are different, and in some ways deeper and more emotional, than if we communicated solely by phone. I find that I reveal more and express myself more subtly as I relearn the art of letter writing."

The Muppet Master

Henson created the Muppets nearly 30 years ago. With the success of "Sesame Street," his creations, especially Kermit, became stars. Henson's organization has had a string of well-received television shows and several films, including *The Muppets Take Manhattan*. And the Muppet characters appear in nearly a thousand commercial products of various kinds, from dolls and party hats to playhouses and pajamas. Over the years the success of the Muppets has made Henson himself a celebrity.

Henson uses his Macintosh for artistic inspiration and doodling; he delegates day-to-day business operations to others. "I'm a visual person, not a word person, so I appreciate the mouse," explains the puppeteer. "I like playing with the images that you can create on the Macintosh far more than I like exchanging scripts and script ideas, which is primarily what our writers use the machine for.

"I feel like I'm playing when I use the Mac. But it's quite possible that any one of the characters I sketch out on the screen could end up in a project we do in the next couple of years. The puppet makers would use those doodles as a basis for creating a new puppet." Now that the Muppets have become a ubiquitous part of American culture, Henson is acutely aware of the influence his creations have with their fans. "When you've been doing 'Sesame Street' for 17 years, you develop a sense of responsibility toward kids."

Part of that responsibility involves making computers a part of the Muppet world. "As computers become more a part of our culture, we find that we're using them more. We even include computers on some of our sets. For example, in our latest movie, *Labyrinth,* which was shot in London with George Lucas, a computer is sitting on the desk of the central character. The computer just happens to be present along with lots of other objects."

'It's easier for kids to learn from puppets than from a teacher figure. That's why we believe our educational software can be so influential.'

In another example of the influence of computer technology on entertainment, Henson Associates has developed a computer game version of *Labyrinth* with the games division of Lucasfilm. The game is scheduled for release at the same time as the film—late this spring—and will be available on the Macintosh. But perhaps most important in establishing the appropriate relationship between the Muppets and computers is educational software. "Over the years," says Henson, "the Muppets have shown that they can help kids deal with learning in new ways. It's easier for kids to learn from puppets than from an adult teacher figure. That's why we believe our educational software can be so important and influential.

"I certainly never used a personal computer before the Macintosh. Its visual style is what appeals to me most. And of course, the visual quality is exactly what makes the Mac good for children too. Hopefully the Macintosh will influence all educational software in the next few years."

Henson is very interested in computer animation and graphics, especially in the possibilities for mixing live-action puppetry with computer animation. Interactive films are another area of technology that excites the puppeteer. "In *Labyrinth* we used lots of radio-controlled devices instead of manual cable controls, and that's the direction we see the future taking. We're at the forefront of this technology, which enables puppets to be remotely controlled without losing the warmth of live presence. As long as we can use the technology without losing the magic of the human performance, we'll keep pursuing it. But the magic of puppetry is in the performance, and computers can't replace that no matter how friendly they are."

A somewhat aggressive acronym for such a congenial company, this inlaid copper ha! *in the foyer floor greets visitors to the Henson Associates' Manhattan offices.*

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The Software Guru

Perhaps the most effusive Macintosh partisan among all Henson's associates is Chris Cerf. Cerf has had a distinguished career as a humorist. He was a member of the original group of writers at the *National Lampoon* and has produced and written a number of books and parodies. Most recently he coauthored *The Experts Speak* with Victor Navasky. The book contains thousands of examples of "authoritative misinformation." Cerf is an award-winning songwriter, having received two Grammies for his music on the Children's Television Workshop shows "Sesame Street" and "The Electric Company." And he has a best-selling album, *Born to Add*–a collection of rock parodies written for kids that was nominated for two more Grammies last year.

Cerf has recently become an eloquent spokesperson for the use of computers in education. He has consulted for the software publishing divisions of CBS, Random House, and Simon & Schuster, as well as for the toy division of Fisher-Price. So far five software packages for the Apple II family and the Commodore 64 have sprung from the Henson-Cerf collaboration. In addition to *Kermit's Electronic Storymaker,* from Simon & Schuster, and the Muppet Discovery Disk with the Muppet Learning Keys, from Koala Technologies, Henson and Cerf developed *The Great Gonzo in WordRider* for Simon & Schuster and a new "Fraggle Rock"-based interactive storybook, *The Mystery of the River of Song,* for CBS Software. (The Learning Keys are also available for the IBM PCjr, and will soon be available for the Macintosh.) An appealing software cruise on the SS Microchip with Captain Kermit, entitled *Welcome Aboard* and available from Brøderbund, introduces the elements of personal computing for different home computers.

In addition to designing software for Henson Associates, Cerf, along with musical director Joe Carroll and other songwriters, composes music, including songs, for the cast of puppets in "The Little Muppet Monster Show."

Cerf uses his Macintosh extensively, both to compose lyrics and to pursue his diverse interests. When Cerf is composing songs, he works with a Macintosh, an Apple II, a piano, and an Alpha Syntauri synthesizer connected to the Apple II. Once he comes up with a tune, he tapes a version on a cassette. Then he sits down in front of the Macintosh and writes the lyrics.

The Macintosh in Education

Like Henson, Cerf believes that the Macintosh is ideally suited for educational programs, especially those that require pointing at objects on screen. "The fact that a four-year-old can use *MacPaint* or *MacWrite* without much coaching shows the Mac's great potential in education," Cerf says. "The Mac's visual user interface has been an important influence on much of our software to date. I'm convinced that the Mac is the way of the future. And with the new computers coming out, like Commodore's Amiga or the Atari ST, you can clearly see the influence that the Mac has had on the entire computer industry.

"Education software designers are only beginning to use the interactive possibilities of pictures and pointing at words and numbers to introduce learning concepts. A program like *ChipWits* is a wonderful example of educational software that uses the Mac's interface for fun while it teaches an important set of computer programming lessons."

Chris Cerf (with glasses), Animal (with red nose), and other Henson associates at Cerf's workstation. The Grammy-winning composer and humorist is an accomplished keyboardist on both the synthesizer and the Mac, on which he writes lyrics to new standbys like "Born to Add."

The lack of color on the Macintosh, however, is a problem for educational software developers. "Unfortunately, the critical limit of the Mac, especially for young kids, is color. Maybe color isn't so important for adults, but for children it is. When the Mac was still secret, Steve Jobs showed it to me and asked how important I thought color was to a personal computer. I told him it was absolutely essential," Cerf chuckles. "You can see how much influence I have."

Cerf became obsessed by the possibilities of computers in education early—his first computer was an Apple II. Not surprisingly, since he worked with the Children's Television Workshop for several years before becoming an independent consultant, the same philosophy that pervades "Sesame Street" determined his direction as a software designer. "Early educational software was always more educational than fun. Since the Children's Television Workshop proved that learning could be fun as well as extremely visual, why not the same combination for educational programs?"

The Muppet Learning Keys

In the late 1970s at Sesame Place, a theme park located halfway between Philadelphia and New York, a series of interactive computer displays and games were built. They included the first prototypes of a keyboard designed especially for kids by Dave Thornburg of Koala Technologies.

M.I.T. (Muppet Institute of Technology) staff members (from front to back) Robin, Bill Prady, and Scooter demonstrate the Muppet Learning Keys, a keyboard specially designed for children and other small creatures.

Cerf and his longtime crony Michael Frith—who is creative director, executive producer, art director, and general right-hand man for Jim Henson—collaborated with Thornburg on the project. They took the concept of a desk top, which they had encountered with Apple's Lisa computer, and skewed it to a child's perspective. The goal was to produce a personal computer keyboard that a young child could easily use and that, by playing off the Muppets, would be completely nonthreatening.

They designed the keyboard to look like the top of a child's desk, with pictures of notebooks, a pencil tray, a box of watercolors, a big fat eraser, and a keypad that looks like a small chalkboard with all the letters of the alphabet marked in uppercase. And the three made their keyboard peanut butter and jelly proof. The prototype eventually became the Muppet Learning Keys.

"Exploration, not explanation. That's the philosophy behind the Learning Keys and our other products," explains Bill Prady, chief of the Muppet Institute of Technology. The Institute is the Muppet software and hardware division. The initials of the institute, lest you miss them, are M.I.T., and its motto is *Learnum Est Funum.*

"There is one underlying idea in Learning Keys: a child cannot make a mistake," says Prady. "In the starting discovery mode, every object the child presses on the keyboard does something. For instance, the child hits the letter *K* and a kite appears on screen; hit the number 6 and six kites appear; press the yellow button and all six kites turn yellow. We are convinced that kids learn by trial and error, by cause and effect—which means by pounding on the keyboard and seeing that every time they press one key, the same image appears on screen. Then one day if a child wants to bring six yellow kites on screen, he or she will figure out how. All of a sudden you've introduced the concept of a keyboard to a three-year-old and at the same time given him or her lots of practice discriminating among various letters, numbers, and colors.

"There's still a place for learning by rote, such as memorizing long lists. For example, the letters on the Learning Keys are arranged in alphabetical order because to the kids of the ages for which the Learning Keys are important [two to six] we're teaching the alphabet by memorization. Giving kids a QWERTY keyboard while you teach them the ABCs can be confusing, even counterproductive. Many kids get frustrated." Currently, educational software for the Macintosh is mostly designed for the college level. From kindergarten through high school, the Apple II dominates the classroom. Cerf thinks that the Macintosh will even-

tually gain a strong foothold in primary education, especially if a color Mac becomes available. "The Macintosh and Apple II will grow closer together," he says. "That is how it should have been all along. With new interface boards and peripherals, the two machines should become compatible. If Apple II educational software could easily be adapted for the Macintosh, the Mac would be viable in the home and in primary education. I think that in the future compatibility between computers will be the norm, not unusual.

'Exploration, not explanation. That's the philosophy behind the Learning Keys.'

"Currently, we are developing *Kermit's Electronic Storymaker* for the Macintosh. I'm proudest of this program because of the ways it uses the Macintosh-style interface. *Kermit's Electronic Storymaker* lets kids point to different parts of a sentence and insert or change words without typing anything. As fast as they put words on the screen, they see an animated cartoon of the sentence they produced, no matter how absurd the sentence might be.

"The result is that kids learn about sentence structure and increase their reading vocabulary. The idea is to let kids have fun while they learn something. The Macintosh is perfectly suited to that, with no special function keys, just a mouse and icons."

A Look into the Future

Cerf feels that we'll soon see technological breakthroughs in computers and education, especially in the area of digital sound production. "Good sound adds dimension to the computer's value as a learning tool," says Cerf. He explains that phonics have been taught for years from books without the benefit of sound, but believes that the home computers of tomorrow will change the way subjects such as phonics are taught.

"The interesting new medium," says Cerf, "will be interactive film, both for educational and entertainment products. Imagine that a kid watching 'Sesame Street' could tell Grover what direction to go by talking directly to him, and depending on what was said, the story would change.

"We're interested in that kind of interactive program, and the technology is available now. Computers have to reach the home or school in sufficient numbers, and that will probably happen sooner than we think."

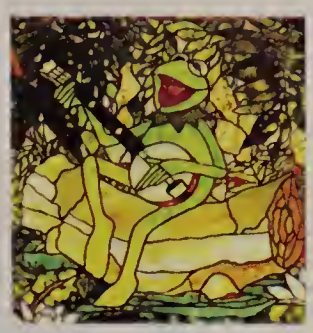
The Children's Vote

Since the Muppets are a part of the American cultural landscape now, they pop up anywhere, even in the most American of places—shopping malls. And there the Muppet Institute of Technology exhibits are often set up, introducing children to computers and technology. Recently Cerf was at a Macy's on Long Island for an M.I.T. exhibit. A giant computer was erected alongside the exhibit, and life-size versions of Professor Bunsen Honeydew and his assistant, Beaker, entertained the children. Hundreds of children crowded the exhibit, waiting for their turn to play with dozens of Muppet Learning Keys devices.

In the middle of all the activity, Cerf, wearing a Kermit the Frog tie, watched the children interact with the computers. "I don't want you to get the impression that this is a big joke," says the software designer, suddenly turning serious. "I care desperately about kids and education, especially about the future of reading. I think that's where I can have the most influence, and I think our programs can be most influential by being a lot of fun."

Fun in education is such a simple idea, you wouldn't think it was revolutionary. Henson and Cerf are using the Muppets to introduce children to modern technology in a gentle way. Their programs and products let children discover on their own, without the intervening hand of an adult. That's one reason why the Macintosh and the Muppets are a good match: the creators of both have similar philosophies.The Mac's unintimidating visual interface and design make it accessible to everyone. Even to a Muppet like Kermit.

Kermit, of course, has his own requirements when it comes to a computer. "I'm looking for a computer with a few more bugs in it," said the frog when asked what machine he'd really like, "and maybe a few flies as well." □



"Strummin' on the old banjo . . . " A stained-glass tribute to Kermit, the Muppets' affable, amphibious master of ceremonies, graces the Henson Associates' lobby.

Jeffrey S. Young is a Contributing Editor of Macworld.

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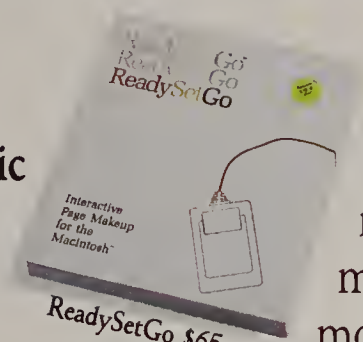

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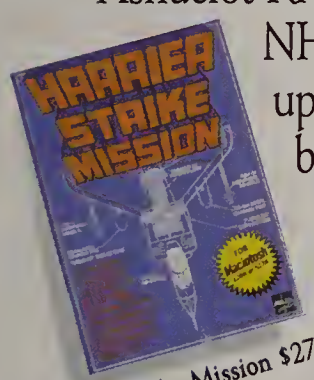

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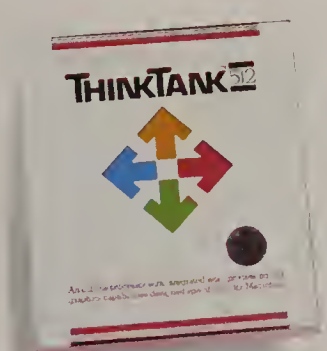

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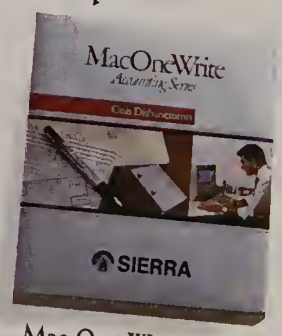

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Cyborg *(sci-fi text adventure)* ..... 24.

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Buy both and save. With the selection of a Macinware carrying case and the choice of either the regular or wide Imagewriter printer case, your cost is only ..... 79.

CBS
✓Murder by the Dozen ..... 25.
Creighton Development
✓MacCommand ..... 21.
Epyx
Rogue *(great graphics)* ..... 24.
Gamestar
Championship Star League Baseball ... 24.
Hayden Software
Masterpieces ..... 24.
Word Challenge II ..... 24.
Sargon III *(9 levels of chess)* ..... 30.
Infocom
✓Seastalker *(junior)* ..... 24.
✓Cutthroats *(standard)* ..... 24.
✓Enchanter *(standard)* ..... 24.
✓Hitchhiker's Guide *(standard)* ..... 24.
✓Planetfall *(standard)* ..... 24.
✓Wishbringer *(standard)* ..... 24.
✓The Witness *(standard)* ..... 24.
✓Zork I *(standard)* ..... 24.
✓Zork II *(advanced)* ..... 27.
✓Zork III *(advanced)* ..... 27.
✓A Mind Forever Voyaging *(advanced)* .. 27.
✓Infidel *(advanced)* ..... 27.
✓Sorcerer *(advanced)* ..... $27.
✓Suspect *(advanced)* ..... 27.
✓Deadline *(expert)* ..... 29.
✓Starcross *(expert)* ..... 29.
✓Suspended *(expert)* ..... 29.
Invisiclues (hint booklets) ..... 6.
Mark of the Unicorn
✓Mouse Stampede *(highly addictive)* .... 23.
Miles Computing
✓MacAttack *(3-D tank simulation)* ..... 27.
Harrier Strike Mission ..... 27.
Mindscape
Déjà Vu *(murder mystery)* ..... 33.
Mirage Concepts
Trivia *(special price)* ..... 19.
Origin Systems
Exodus: Ultima III *(fantasy adventure)* ... 38.
PBI Software
✓Feathers in Space ..... 21.
✓Strategic Conquest ..... 29.
Fokker TriPlane Flight Simulator ..... 35.
Penguin
✓Transylvania ..... 24.
✓The Quest ..... 24.
✓Pensate ..... 24.
Pryority Software
✓Forbidden Quest ..... 25.
✓Gateway *(sci-fi fantasy adventure)* ..... 25.
Psion
✓Psion Chess *(3D and multi-lingual)* ..... 31.
Scarborough Systems
Run for the Money ..... 29.
Make Millions ..... 29.
Sierra On-Line
Frogger ..... 24.
Championship Boxing ..... 27.
Ultima II *(role-playing adventure)* ..... 35.
Silicon Beach Software
Airborne! *(great graphics and sound)* .. 21.
Soft-Life Corp.
Mac-Slots ..... 25.
The best one-armed bandit going!
Spectrum Holobyte
GATO *(submarine simulation)* ..... 27.
Telarium
Amazon ..... 27.
Dragon World ..... 27.
Farenheit 451 ..... 27.
Unicorn
Futuria *(sci-fi adventure)* ..... 24.
Utopia *(science fantasy game)* ..... 24.
Animal Kingdom *(ages 6-12)* ..... 27.
Science and language arts program.
Mac Robots *(animation and speech)* ... 27.

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Circle 4 on reader service card

tosh products.

Videx
- Funpak ..... $23.
- MacCheckers/Reversi ..... 28.
- MacGammon/Cribbage ..... 28.
- MacVegas ..... 34.

HARDWARE

Assimilation
- Mac·Port·Adaptor ..... 69.
- Mac·Epson·Connection ..... 75.
- Mac·Daisywheel·Connection ..... 79.
- Mac·Turbo·Touch ..... 89.

Compucable
- Mac to Hayes Smartmodem cable ..... 17.
- Mac to Epson FX/RX/JX printer cable ..... 17.
- Mac to Apple modem cable ..... 17.

Creighton Development
- Proprint ..... 39.
- Proprint *(w/one cable)* ..... 54.
- Proprint *(w/two cables)* ..... 139.

Curtis Manufacturing
- Diamond *(6 outlets)* ..... 28.
- Emerald *(6 outlets; 6 ft cord)* ..... 34.
- Sapphire *(3 outlets; EMI/RFI filtered)* ..... 44.
- Ruby *(6 outlets; EMI/RFI filtered; 6 ft cord)* 50.

Epson
- FX-85 ..... call
- FX-185 ..... call
- JX-80 ..... call
- LX-80 ..... call
- LQ-1500 *(letter quality dot matrix)* ..... call

Hayes
- Smartmodem 300 ..... call
- Smartmodem 1200 ..... call
- Smartmodem 1200 Package ..... call
  Includes modem, software and cable.
- Smartmodem 2400 ..... call
- Smartcom II *(communications software)* 86.

IOMEGA
- Bernoulli Box *(5-megabyte storage)* ..... 1315.
- 5-meg Cartridge ..... 39.
- Head Cleaning Kit ..... 59.

Kensington
- External Disk Drive Cover ..... 8.
- Mouse Pocket ..... 8.
- Mac Dust Cover ..... 10.
- Mac XL Dust Cover ..... 10.
- Imagewriter Dust Cover ..... 10.
- Wide Imagewriter Dust cover ..... 10.
- Mouse Cleaning Kit w/Mouse Pocket ..... 16.
- Universal Printer Stand ..... 17.
- Disk Case *(holds 36 Mac disks)* ..... 19.
- Disk Drive Cleaning Kit ..... 19.
- Tilt/Swivel ..... 22.
- Polarizing Filter ..... 31.
- Surge Suppressor ..... 32.
- Starter Pack *(includes Tilt/Swivel)* ..... 53.
- A-B Box ..... 60.
- Control Center ..... 61.
- Modem *(300 baud)* ..... 89.

Koala Technologies
- MacVision *(digitizer)* ..... 169.

Kraft
- QuickStick ..... 45.

Microcom
- MacModem *(Hayes compatible)* 469

Microsoft
- MacEnhancer 159

Mitsuba
- Super 5 External Drive ..... $239.

Mouse Systems
- A+ Optical Mouse ..... 59.

Paradise Systems
- Mac 10 *(10 megabyte hard disk)* ..... 1029.

PBI Software
- Switch Box ..... 36.

Systems Control
- MacGard *(surge protection)* ..... 55.

Video 7
- MouseStick ..... 39.

DISKS

- **BASF** 3½" Disks *(box of 5)* ..... 13.
- **Verbatim** 3½" Disks *(box of 10)* ..... 25.
- **Sony** 3½" Disks *(box of 10)* ..... 25.
- **Fuji** 3½" Disks *(box of 10)* ..... 25.
- **Memorex** 3½" Disks *(box of 10)* ..... 25.
- **MAXELL** 3½" Disks *(box of 10)* ..... 25.
- **3M** 3½" Disks *(box of 10)* ..... 25.

INFORMATION SERVICES

Compuserve
- Compuserve Information Service ..... 19.

Source Telecomputing
- The Source *(subscription & manual)* ..... 30.

MISCELLANEOUS

American Tourister
- Mac Carrying Case ..... 69.

Automation Facilities
- Floppiclene *(ten cleaning disks)* ..... 25.
- Refill Kit *(ten disks)* 10

Clean Image Ribbon Co.
- Clean Image Ribbon Kit ..... 12.
  Designed to clean the print-head.

Computer Coverup
- External Disk Drive Cover ..... 4.
- Imagewriter Cover ..... 8.
- Wide Imagewriter Cover ..... 8.
- Mac & Keyboard *(two covers)* ..... 10.

Diversions
- Underware Ribbon ..... 10.
- Underware Colorpens ..... 10.
- Jumbo Colorpens ..... 13.
- ColorPack ..... 19.
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Environmental Software Company
- The Clutch *(holds 8 disks)* ..... 9.
- MacAttire
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- Laserwriter Cover 17
- Mac XL & Keyboard Cover 20

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- Imageware ..... special
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Innovative Concepts
- Flip & File *(holds 25 disks)* ..... $10.
- Flip & File *(holds 40 disks)* ..... 18.

Innovative Technologies
- The Pocket Pak *(holds 6 disks)* ..... 10.
- The Easel *(holds 20 disks)* ..... 14.
- CompuBag ..... 59.
  Well-padded carrying case for your Mac and accessories. Reinforced bottom.

Kalmar Designs
- Teakwood Roll-top Case *(holds 45 disks)* 14.
- Teakwood Roll-top Case *(holds 90 disks)* 24.

Microsoft Press
- Microsoft Multiplan: Of Mice and Menus 13.
- Inside MacPaint ..... 14.
- MacWork MacPlay ..... 14.
- The Apple Macintosh Book ..... 14.
- Presentation Graphics on Apple Mac ..... 14.
- The Printed Word ..... 14.
- Macinations *(intro to Basic)* ..... 17.

Moustrak
- Moustrak Pad
- Standard 7"x9" size ..... 8.
- Large 9"x11" size ..... 9.
- Imagewriter Pad ..... 11.

Pacific Wave
- Flip Sort Micro *(holds 40 disks)* ..... 12.
- Flip Sort Micro *(holds 60 disks)* ..... 15.

Ribbons Unlimited
Available in black, blue, brown, green, purple, red, yellow, orange and silver.
- Imagewriter Ribbon ..... 5.
- Imagewriter Ribbons Six Pack ..... 27.
- Imagewriter Rainbow Six Pack ..... 27.

Smith & Bellows
- Basswood disk case *(holds 90 disks)* ..... 19.

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Macware Reviews

Create a form-based database, strategize beneath the sea, rotate and distort MacPaint images, save keystrokes, explore strange new worlds, and tutor your kids

Edited by Erfert Nielson

In Fine Form

Businesses seem to find substance in forms. Most business communication, from magazine subscription blanks to insurance claims forms, must be recorded in a fixed, organized format. And please–print neatly or type.

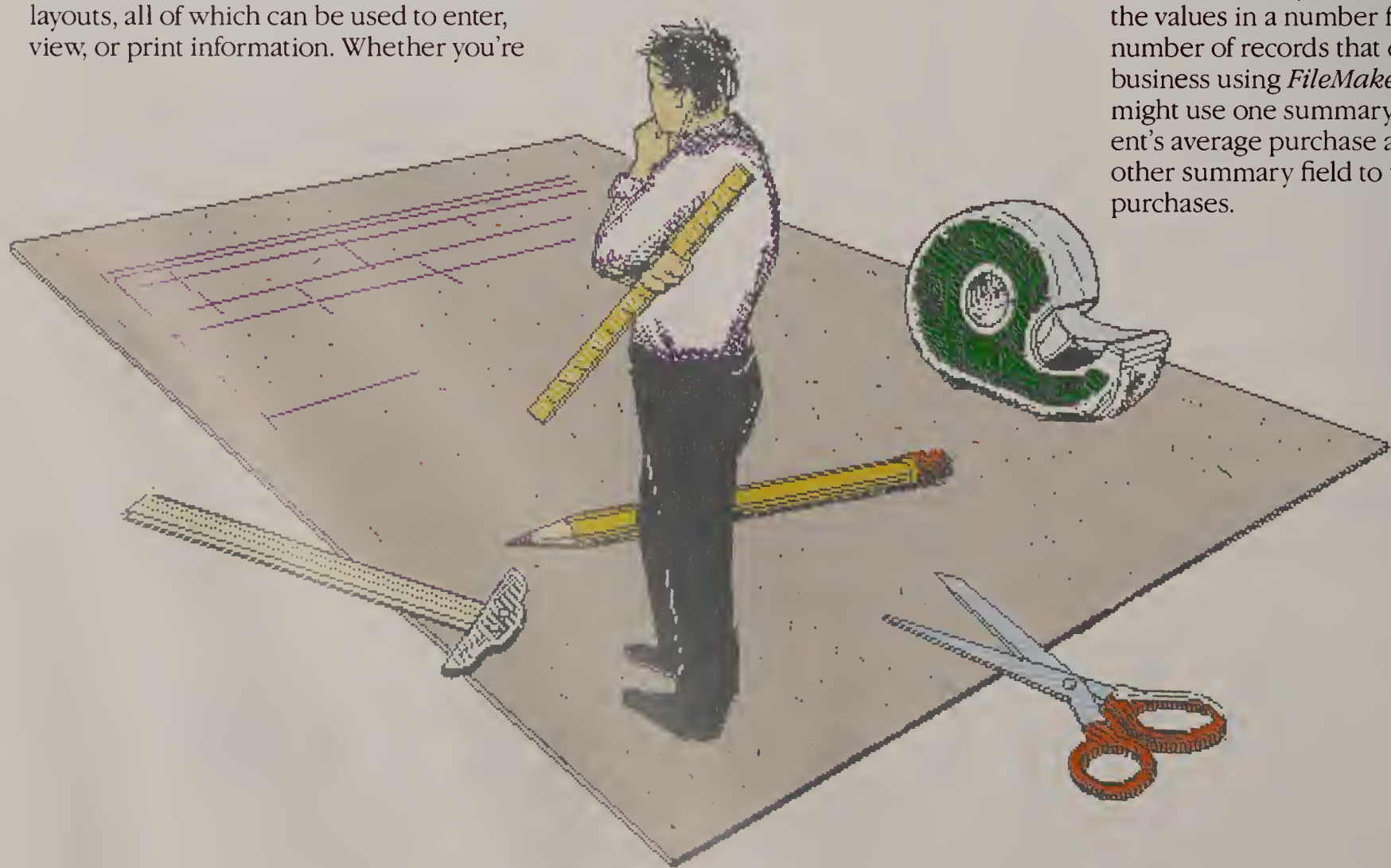
FileMaker, a database manager from Forethought, can't help you print neatly, but it can help you design forms that are easy on the eyes and the writing hand. In addition to the usual data management capabilities that let you store, sort, and search records, *FileMaker* is adept at creating forms. This marriage of filer and form generator is a happy one. You can use the program's form design tools to create different visual layouts, all of which can be used to enter, view, or print information. Whether you're designing insurance forms that sadistically require applicants to print each character in its own tiny box or tracking your videotape collection, *FileMaker* helps you design and produce forms so easily that you hardly need its excellent manual.

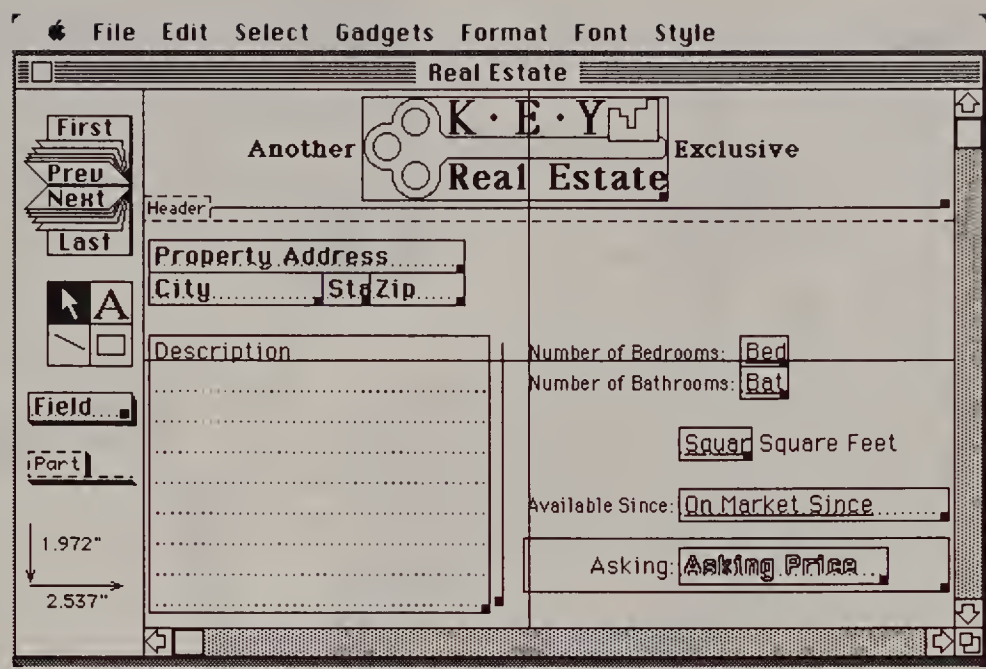
Fields Apart

FileMaker steps you through the design process in a logical way that provides a maximum of flexibility. The program separates the design process into two phases: you first define the type of information you want to store and then design one or more layouts for entering, viewing, or printing information.

When you open a new database, a dialog box appears in which you define the type and format of the database's fields. You don't have to bother specifying field lengths–as some programs require–that may later prove to be either too short to store necessary information or unnecessarily long, wasting valuable disk space.

The program includes five field types: text, number, date, calculation, and summary. A calculation field contains a formula of up to 250 characters that calculates numbers stored in other fields. For example, you could create a field to calculate the total cost of a job by adding the value of the labor field to the value of the materials field. A summary field totals or averages the values in a number field or counts the number of records that contain a field. A business using *FileMaker* to track clients might use one summary field to show a client's average purchase amount and another summary field to total a client's purchases.





Data Layouts
FileMaker *lets you mix fonts on forms. You can also add* MacPaint *or digitized graphics to the layout. Here, the T squares indicate that "Number of Bedrooms" appears 1.972 inches from the top of the form and 2.537 inches from the left. You display other layouts by clicking the book icon.*

On the Layout Table

FileMaker's salient characteristic is the way it lets you design and use forms. Once you define the field types and organization, you handle nearly all other data management tasks through layouts you create in a window equipped with a palette of specialized drawing tools. The tools, well matched to the task of drawing forms, let you embellish a layout with lines, boxes, and text. Boxes for positioning fields and other parts of a layout's format, such as headers, footers, and summaries, are also located on the palette.

In addition to those drawing tools, *FileMaker* includes a pair of T squares and a grid that let you pinpoint design elements to within 1/1000 inch. I was impressed with the effectiveness and accuracy of the T squares and the grid. They're especially useful for creating layouts for printing data on commercially available forms, such as purchase orders or express courier air bills. Most form generators have a difficult time placing information on preprinted forms. *FileMaker*'s precise measuring system and form-generating talents also make the program and the LaserWriter a natural combination.

You can create layouts for different data management purposes, including entering data, viewing records, and creating reports. If you don't want to design your own forms, the program provides an unadorned ready-made layout. Part of *FileMaker*'s appeal, however, is that you can dress up forms with graphics. You can select any Macintosh font, size, and style for field labels and data. You can also paste *MacPaint* images or digitized graphics into the layout (see "Data Layouts"). But *FileMaker*'s graphics don't go much further; the program lacks the picture fields of *Microsoft File,* and you can't link pictures to data like you can with Telos's *Filevision.*

Typing and Browsing

The ease with which you enter data into a *FileMaker* database is comparable to the ease of use of other database programs in its class. The program provides a couple of useful shortcuts that minimize typing when you enter information into a database. You can copy data from an existing field by choosing the field specifically or by selecting it from an index of all previous field entries. *FileMaker* also saves data automatically to prevent a database from losing more than a small amount of information as a result of system errors or power failures. Typing errors are a more common cause of annoyance, but unfortunately, *FileMaker* takes what you type at face value. If you enter text into a number field, for example, the program provides no error message. This blind trust could lead to inaccurate reports, especially when number fields are used in calculation or summary fields.

When you want to use information created with other programs, *FileMaker* does its share. You can create and access text-only files, BASIC sequential-format files, and Microsoft SYLK files. *FileMaker*'s data-sharing capabilities are better than average among its competition and in line with more expensive programs. *FileMaker* also has excellent sorting capabilities that let you organize a database to meet your

(continues on page 120)

my OFFICE

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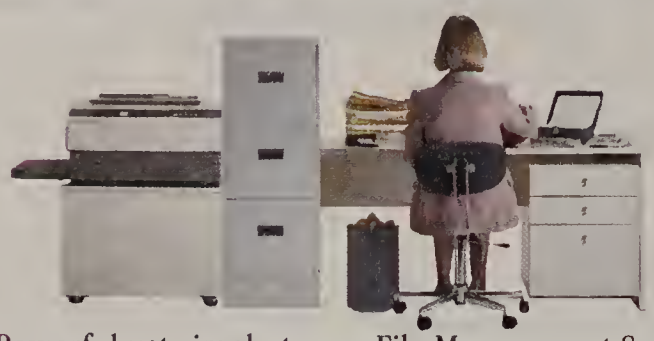

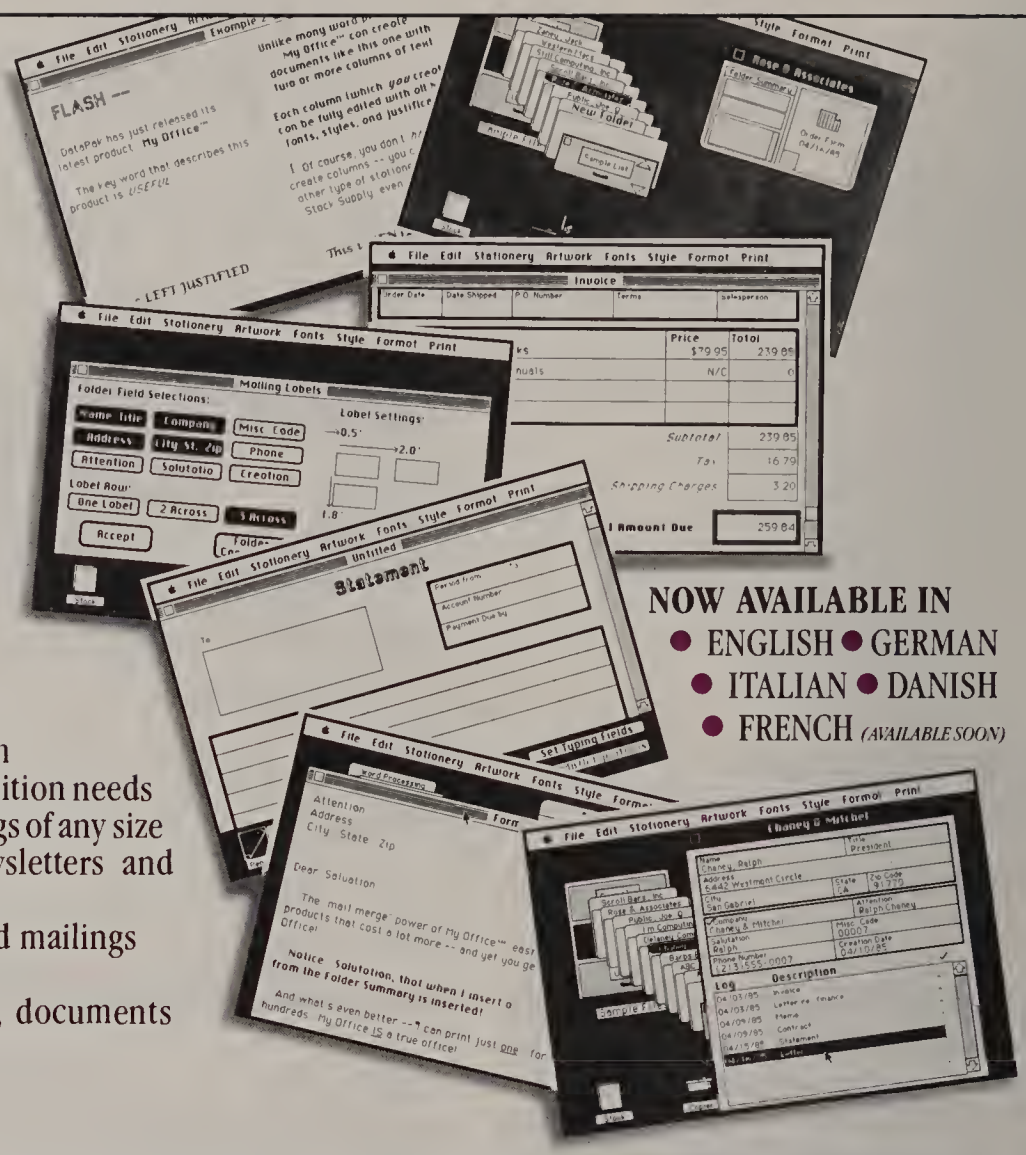

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Circle 159 on reader service card

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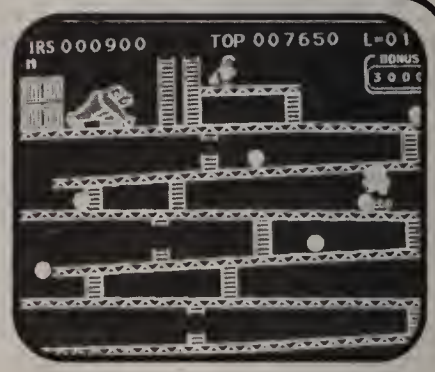
ARCADE ACTION - MULTIPLE SCENARIOS - INCREASING LEVELS OF DIFFICULTY



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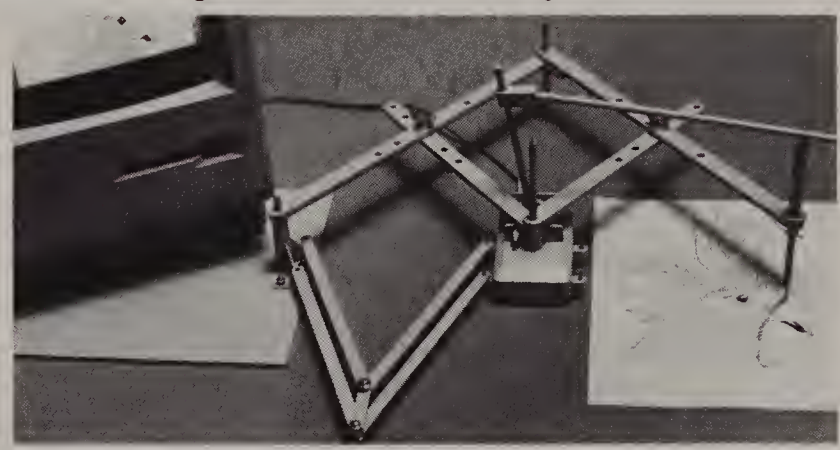

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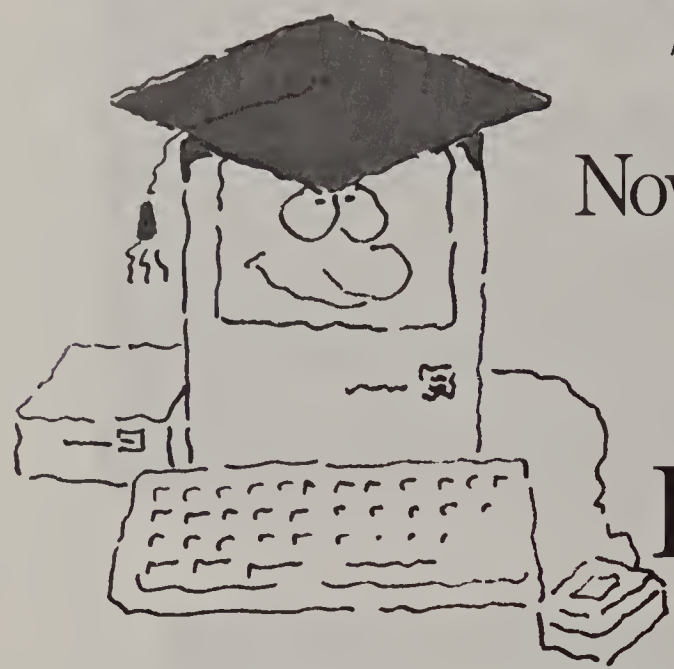
Circle 429 on reader service card



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*ExperLogo-Talk requires a 512K Macintosh and ExperLogo ExperOPS5 and ExperFacts require ExperLisp, a 512K Macintosh and an add-on floppy or hard disk drive. Macintosh is a trademark licensed to Apple Computer. Symbolics 3600 is a registered trademark of Symbolics, Inc. *AI Programming Techniques and Languages: An Introduction* is published by Howard W. Sams & Co., and is available through your local bookstore or direct from the publisher at 4300 West 62nd Avenue, Indianapolis, IN 46206.

Circle 56 on reader service card

(continued from page 117)

specific requirements. You can sort a database on any number of levels, in ascending or descending order.

Once you enter information into a database, you can find records by browsing one record at a time or by searching for records that meet given criteria. Browsing a database is as easy as leafing through a book. *FileMaker*'s book icon lets you jump to the first or last record in a database or view the record preceding or following the one currently displayed. The book icon can also leaf through the form layouts you have created. The double-duty nature of the book icon is in character with the way *FileMaker* reuses tools to perform similar tasks.

Easy Hard Copy

One of *FileMaker*'s strengths is the ease with which it allows you to create reports. Unlike other database managers, *FileMaker* doesn't require you to issue specialized commands to set up and print a report. You determine the visual appearance of a report when you choose a layout. To print the report, you simply choose Print from the File menu. This approach has several advantages over creating reports with commands. You don't have to learn an extra design process to create reports. You can eliminate work by using the same layout to enter data and print reports. Furthermore, you can present the same data in different formats if you design layouts for specialized reports and choose among them before printing. Finally, it's easy to see the final appearance of most reports before they're printed. However, because *FileMaker* displays only one record at a time, you can't accurately preview a columnar report on screen before committing it to paper. And the program doesn't provide as many statistical functions as *Microsoft File* or *1stBase,* two other data managers in *FileMaker*'s class. Another reporting limitation is that you can print only single-column mailing labels, known as "one-across" labels.

FileMaker doesn't check for typing errors and lacks some of the statistical functions of its competitors, but it's a solid, well-designed program that performs well, though it does keep a 128K Macintosh's disk drive busy. *FileMaker*'s greatest

(continues on page 125)

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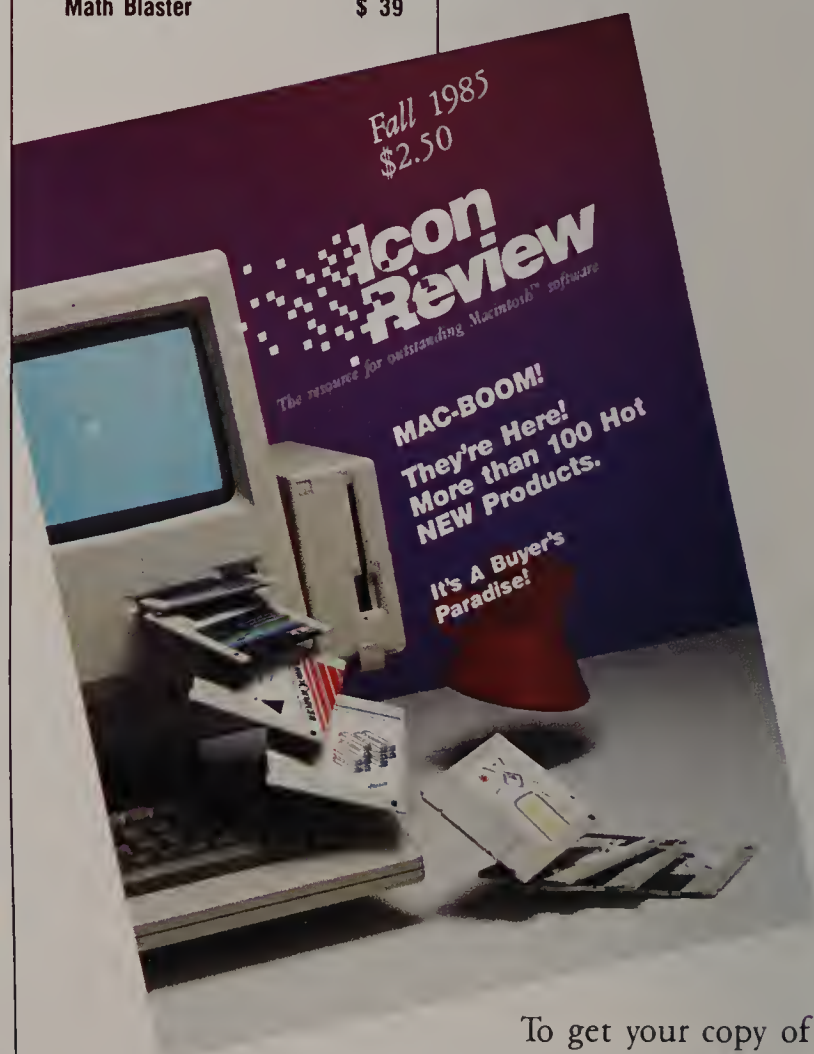

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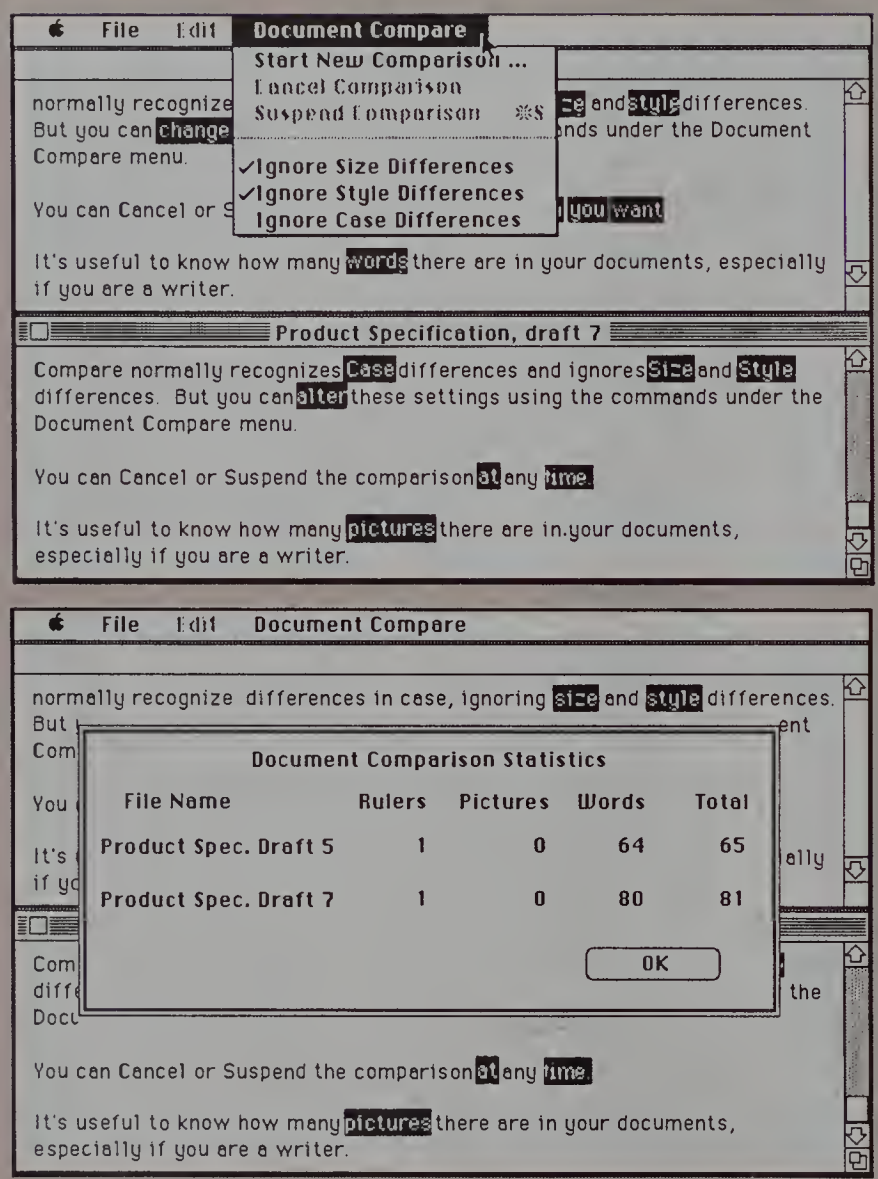

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(continued from page 120)

strength is its flexibility. The program imposes no artificial limits on field lengths or sort levels, making it easy to enter and organize information. With *FileMaker* it's also easy to design visually appealing forms that are precise enough to meet demanding requirements. Best of all, you can reuse the same information in a number of forms, each tailored for a particular purpose. If you need to manage data and insist on bringing still more forms into the world, consider *FileMaker.*–*Jim Heid*

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Down in the Depths

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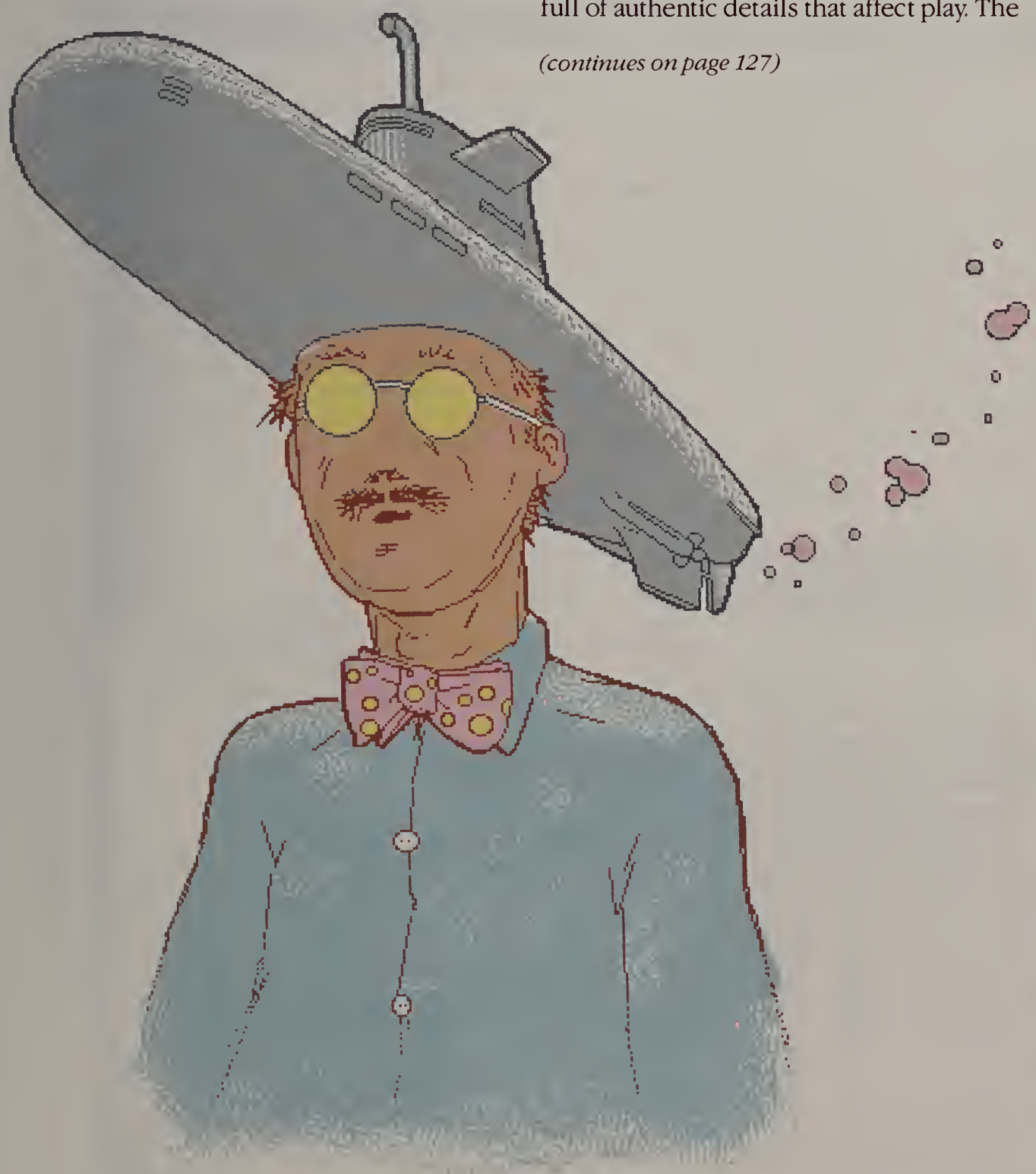
(continues on page 127)



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(continued from page 125)

game's most attractive feature is the way it re-creates the challenges faced by the commander of a Gato-class submarine in the Pacific during World War II. For example, if your mission takes place before 1943, you cannot use radar because it was not introduced until that year. Or if you submerge to a depth greater than 20 feet, you cannot use your diesel engines and must proceed under battery power because your air supply line does not extend beyond that depth.

View from the Bridge

Play commences the moment you receive orders from ComSubPac (Commander Submarine Force Pacific Fleet). Your assignment might be to rescue a downed aviator or to escort a friendly convoy through hostile waters. The way you proceed with your assignment is entirely up to you. Like a real submarine commander, you can choose to attack or avoid an enemy vessel, depending on the circumstances, and you can navigate on the surface or underwater.

The game screen displays most of the information you need to command the *Growler* (see "Underwater Follies"). The middle third of the screen shows the view from the bridge when the sub is on the surface or through the periscope when the sub is less than 50 feet underwater and the periscope is up. By clicking on a directional icon, you can look fore, aft, port, or starboard.

The screen includes analog and digital readouts of the sub's speed, heading, and depth, determined by throttle, rudder, and dive plane controls, which are also displayed. All controls can be operated from the keyboard, although using the mouse is simpler and more intuitive. Also on screen are a control panel from which you can fire torpedoes, a report box with an outline of the sub and "idiot lights" that indicate which parts have sustained damage, and indicators of remaining diesel fuel, battery power, and oxygen supply.

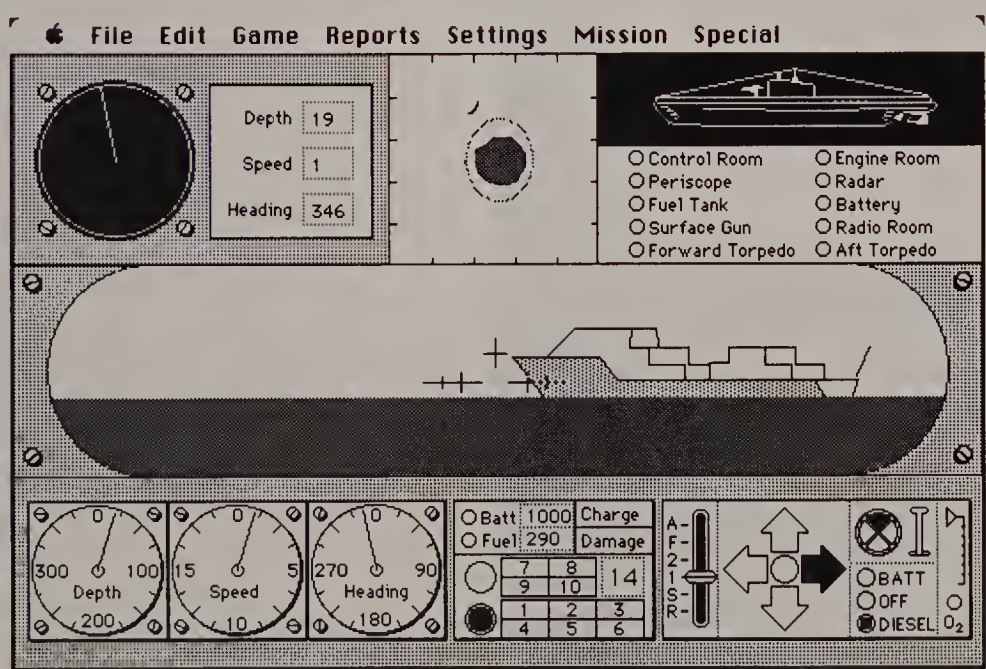
A radar display and a box showing the quadrant the *Growler* is in keep you oriented as you navigate. Clicking in the quadrant box reveals a chart showing the 20 quadrants that are *Gato*'s world at war, as well as still another control panel that lets you load and lay mines.

If your sub is damaged, it stays damaged for the duration of the game unless you can get it to the subtender, a friendly vessel that helps you with refueling, rearming, and repairs. Consequently, you should avoid the serious mistake of sinking the subtender.

Engagements by Design

Missions in the game's ten levels of play range from the relatively simple to the diabolically difficult. If you should become jaded with the missions—a process that could take several years and numerous res-

(continues on page 128)



Underwater Follies
This game screen displays the information you need to command a Gato-class submarine during World War II. An enemy PT boat is about to enter the cross hairs of your periscope, and your forward torpedo bay is open and ready to fire. Try not to miss; PT boats carry depth charges and are much faster than subs.

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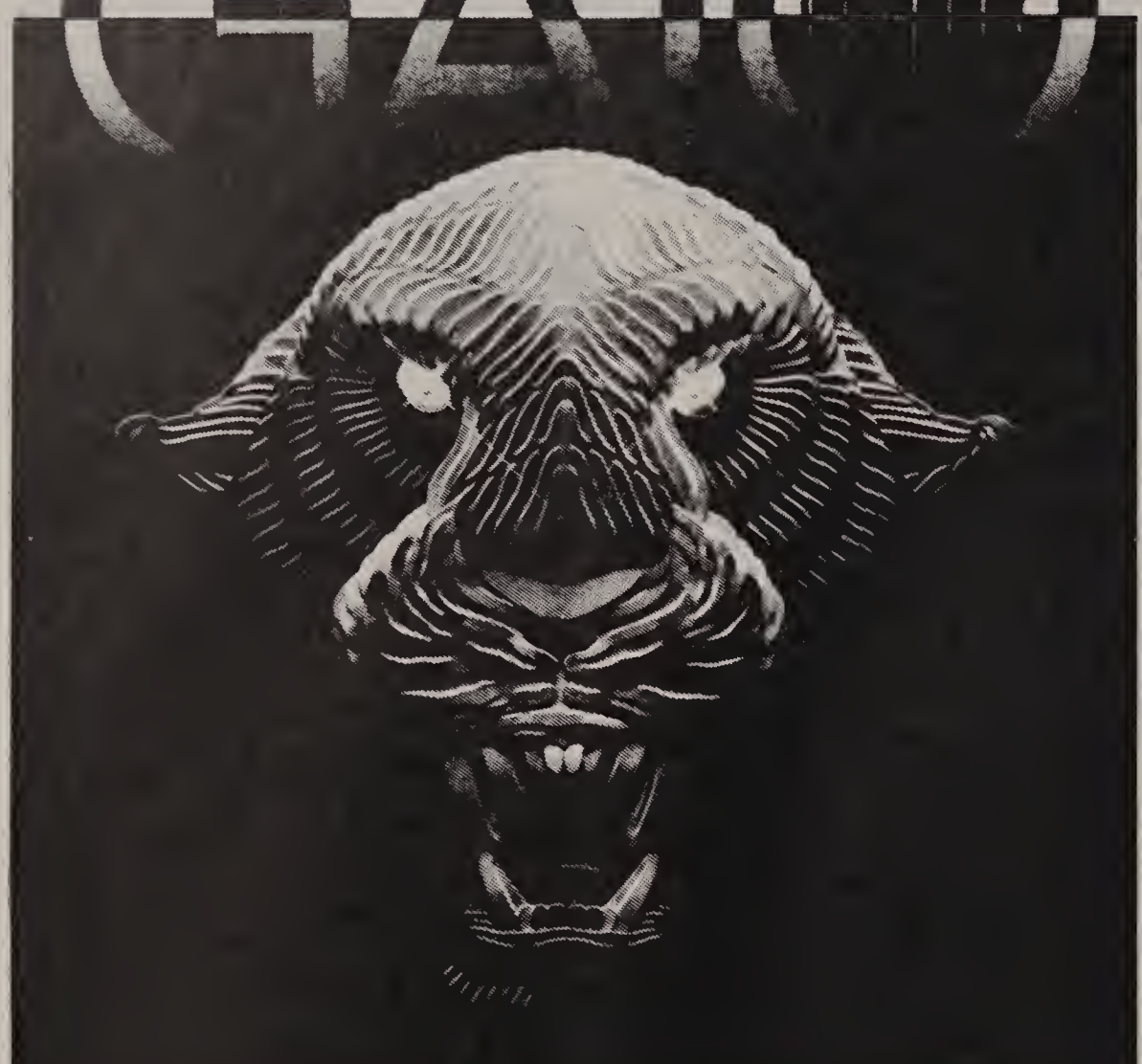

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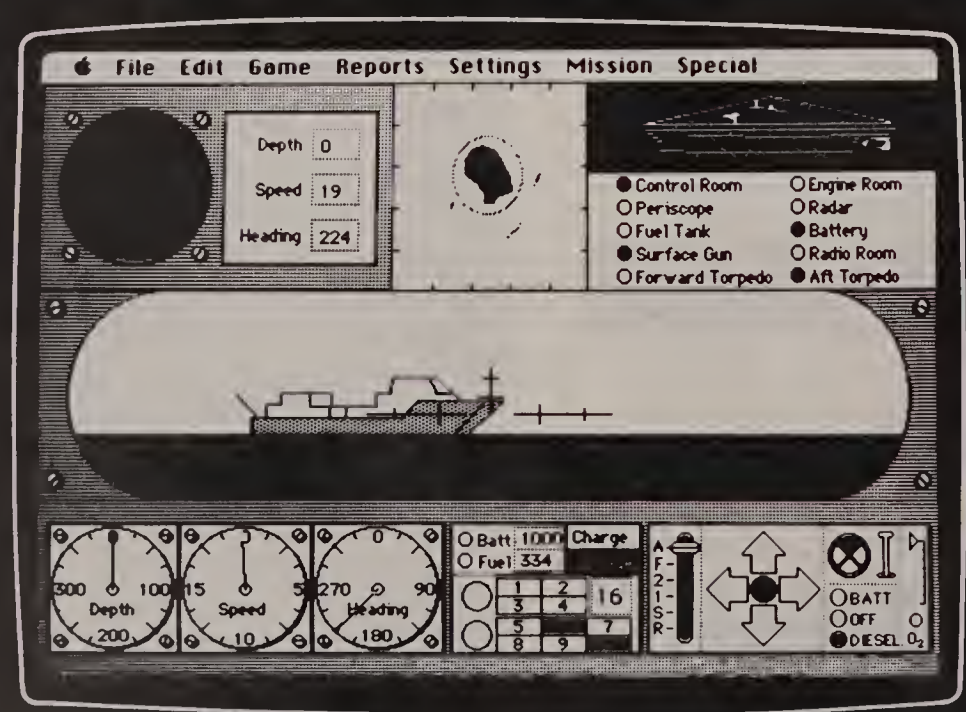

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(continued from page 127)

urrections of the *Growler–Gato* allows you to design your own missions by clicking buttons in the Mission Creator box. The Mission Creator, which is exclusive to the Macintosh version of the game, lets you define elements such as the types of enemy vessels you tangle with, as well as their course and speed.

As you reach the more difficult playing levels, the game progressively becomes more true to life. For example, instructions from ComSubPac are given in Morse code, which is transcribed for you at the elementary levels. However, at levels 3 through 6, instructions are given only in Morse code, with dots and dashes running across the screen, while at levels 7 and above, you only hear the signals, which you must transcribe before embarking on your mission. A Morse code tutorial is available on the game's Special menu. At levels 5 and above, enemy ships are no longer tracked on the quadrants, leaving you at the mercy of your radar and periscope. And at levels 6 and above, the enemy could break the code and intercept messages from ComSubPac, thereby anticipating your destination and other details of your assignment.

That's Reality

The game's verisimilitude might be attributable to Bill Graves, a retired United States Navy captain who advised *Gato*'s programmers. Of course, Captain Graves cannot be blamed for the bothersome bugs that *Gato* version 1.2, which I played for this review, runs into more often than the *Growler* runs into PT boats. The bugs allowed enemy ships to steam right through Pacific islands, made it impossible to save games, and all too often led to system crashes that were more unnerving than going down with the sub.

Fortunately for consumers and would-be submarine commanders, Spectrum Holobyte is replacing the buggy version with a debugged version 1.3. According to product manager Patricia J. Herringer, notices are being sent to *Gato*'s registered owners informing them of the replacement, which is free with the return of the original game disk.

Spectrum Holobyte deserves to be commended for designing a war simulation game that steers clear of the shoals of jin-

(continues on page 130)

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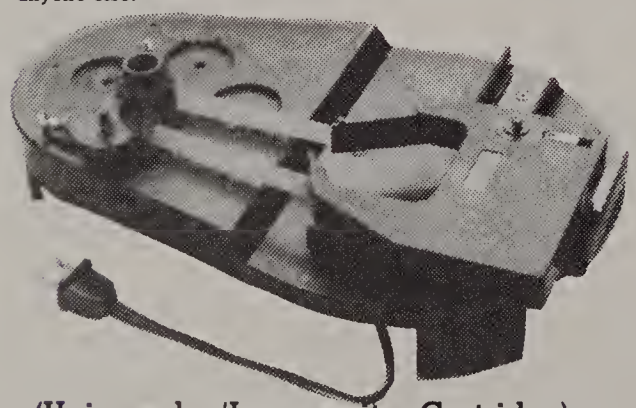

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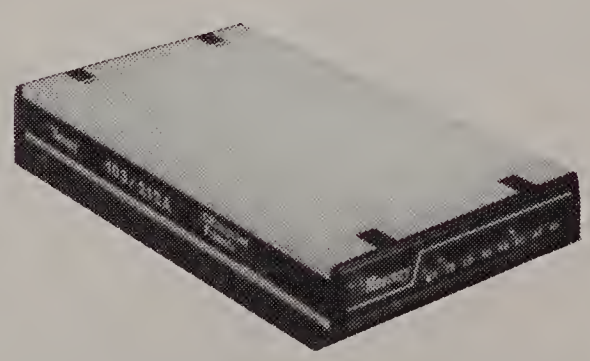

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(continued from page 128)

goism in favor of the open seas of technical challenges. While the effect of this approach may be to sanitize war, it at least does not appeal to the baser, warring instincts of nations.

Gato goes beyond merely simulating a visual environment by recreating the subjective conditions under which a submarine commander experienced war in the Pacific during World War II. The player does not sit back passively watching the environment unfold but actively participates in the game. The requirement of strategic ability, rather than mere hand-eye coordination, makes this game a challenge even for experienced computer game players. And if you should happen to be under 5 feet 6 inches, don't worry; you can still play. Just put a pillow on your chair.—*Nicholas Lavroff*

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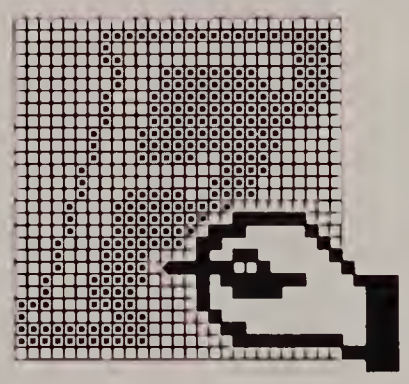

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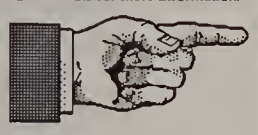

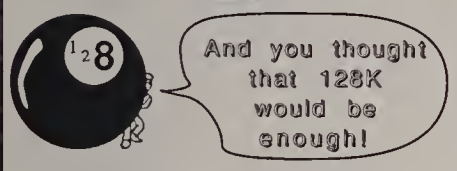

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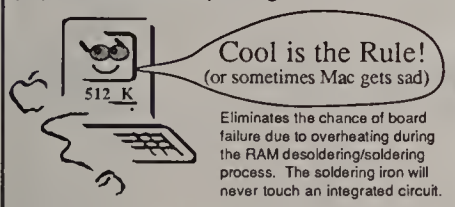

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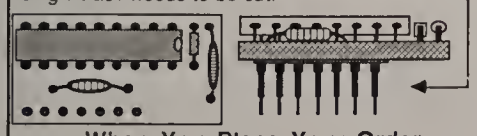

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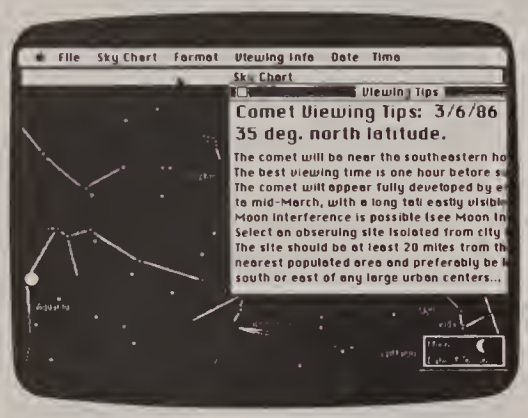
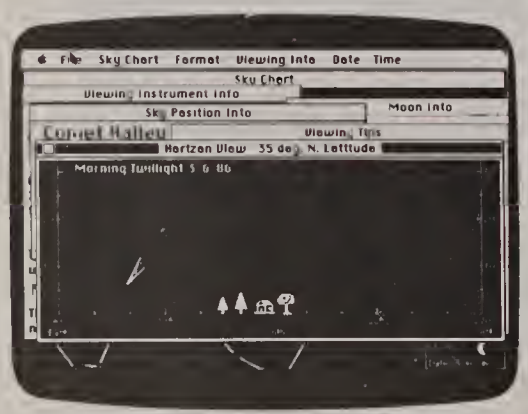
Don't miss the spectacular event which is now appearing in the heavens! Every 76 years Halley's Comet returns for a once in a lifetime visit. The **Comet Halley** program turns your Mac into a complete viewing guide showing the exact position of the comet in a star filled sky.



You will see over 600 stars in 33 constellations. Instrument suggestions and **daily viewing tips** are also given. These include appearance, visibility and optimal viewing times.

"Knowing exactly where and when to look is the key to seeing Comet Halley." Astronomy magazine October 1985



Additional windows give exact sky coordinates, moon information and horizon views. All windows are updated for each date and time August 1, 1985 to July 31, 1986. A continuous advance feature also tracks the progress of the comet across the sky. Latitude can be set for 30°, 35° or 40° North and most information is highly accurate within 5° of the latitude setting.

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Contact your local software dealer or Great Wave Software at 415 325-2202, P.O. Box 5847, Stanford, CA 94305. *From the publishers of ConcertWare+ and ConcertWare+ MIDI.*

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(continued from page 130)

QuickWord can change *nad* to *and*. Checking for abbreviations as you type doesn't affect the rate at which the typing appears on the screen. Expanding abbreviations occurs at 20 to 30 characters per second, faster than anyone can type but slow enough that you have to wait for lengthy expansions.

Abbreviations and their expansions are kept in a table you create. You type the abbreviations on the left side of the table and the expansions on the right side (see "Abbreviation Table"). An abbreviation contains from one to four characters—letters, digits, and symbols—in any combination you find easy to remember. An expansion contains any text you type on the keyboard, including Return, Tab, and Option-key characters. Since expansions can be any length, QuickWord can be used for creating form letters. For example, you can expand an abbreviation into a name and address or an entire paragraph of "canned" text. The expanded text conforms to the document's margins. In addition to the abbreviations and expansions you type, every table automatically includes six unlisted, predefined abbreviations that expand into various forms of the current date and time taken from the Macintosh's internal clock.

In most cases the QuickWord table can remain on the screen beneath the document window, so you can quickly review or edit an entry. You edit the table using familiar techniques: cut, copy, and paste.

I wish QuickWord had the ability to sort the abbreviation table in alphabetical order. If you create a long table, finding a particular abbreviation can be a chore, because abbreviations are listed in the order you enter them.

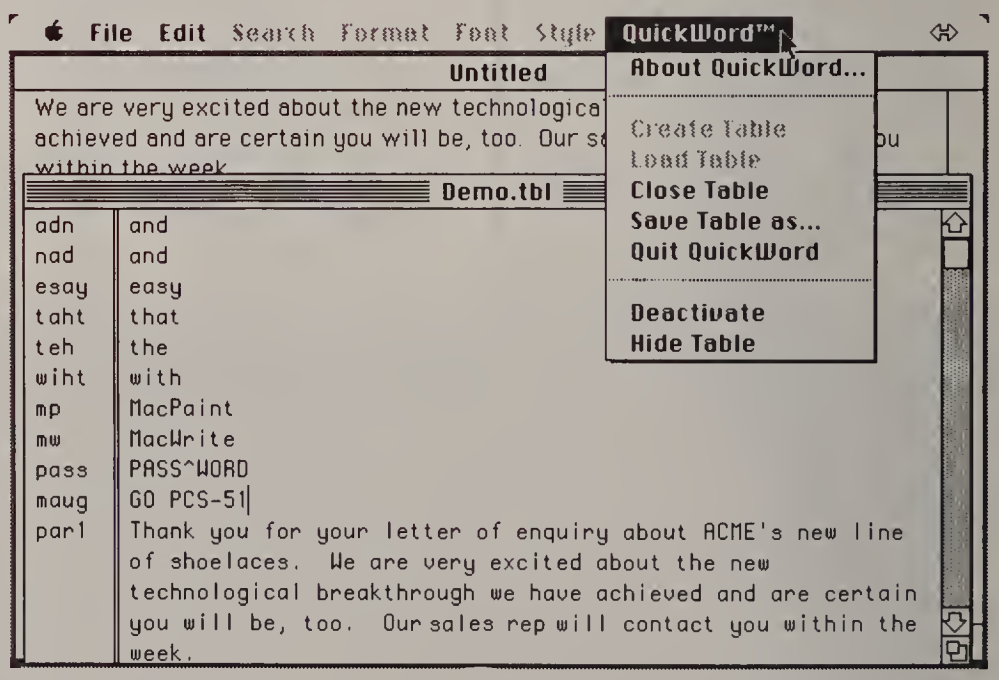
One useful command lets you temporarily deactivate QuickWord to type an abbreviation without expanding it. You can also hide the table but keep it active, a condition required by *MacPaint*.

To install QuickWord you need the Apple Font/DA Mover utility. Once the desk accessory is installed, the System file grows by 14K. I found QuickWord's startup procedure cumbersome. You activate QuickWord by choosing it from the Apple menu each time you start an application. Then you must load a QuickWord table before QuickWord can expand any abbreviations. The need to manually load the table could have been avoided by having the program load a default table. Another hindrance is QuickWord's tendency not to recognize an abbreviation after you backspace over an error. About 10 percent of the time, QuickWord failed to expand an abbreviation after I had misspelled and corrected it.

QuickWord worked well with most of the application programs and desk accessories that I tested. However, I could not get QuickWord to work with *ThinkTank 512*, and though QuickWord works with *MacTerminal* version 1.1, I had problems getting QuickWord to work properly with two other terminal programs, *MacTep* and *ProCom-M*. With both programs, QuickWord did not reliably expand abbrevia-

(continues on page 137)

Abbreviation Table
QuickWord refers to a table to expand abbreviations that you type. You enter abbreviations into the left column of the table and the full text into the right column. The expanded text can be of any length and is reformatted to fit within the margins of the document you are working on.



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IFPS is a 1985 Recipient of ICP's 100 Million Dollar Award. MindSight runs on 512K MAC. Second disk drive recommended.

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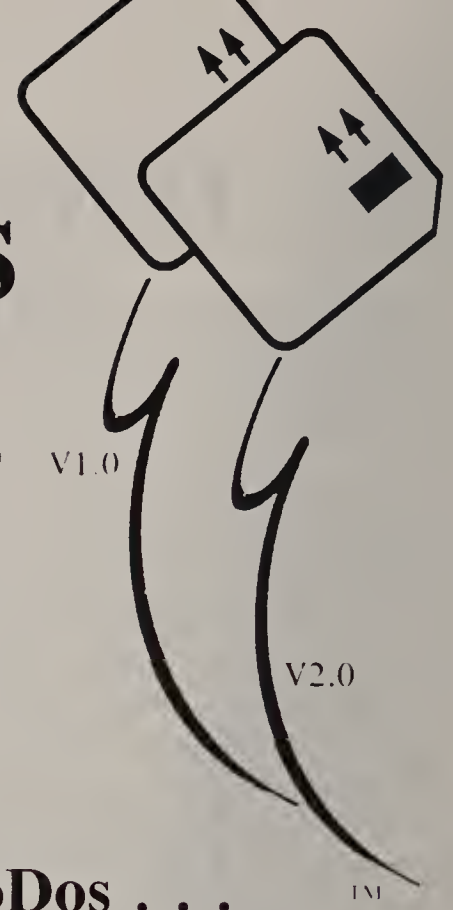
How to run AppleII programs on the Macintosh.™



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100% compatible with the Apple II + , 64K, DOS 3.3, ProDos . . .

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MAC COM
                    MAC COM
                  RECEIVER

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0:  300
1:  1200
2:  2400
3:  9600 DIRECT CONNECTION
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```
MAC DOS
]CATALOG

DISK VOLUME 254

*A 004 HELLO
*B 050 INTBASIC
*B 050 FPBASIC
 A 051 PHONE LIST
*A 003 USING MODEMS W/ MAC COM
*B 017 MAC COM
*I 017 BIORHYTHM
*I 009 COLOR DEMO
```

```
APPLESOFT
290  GET A$: IF A$ = CHR$ (27) THEN
       END : REM ESC KEY PRESSED
300  IF A$ = CHR$ (32) THEN 320:
       REM SPACE BAR PRESSED
310  PRINT CHR$ (7);: GOTO 290:
       BEEP AND TRY AGAIN
320  HOME : PRINT : REM  PROGRA
       STARTS HERE
330  LET D$ = CHR$ (4); REM CTR
340  PRINT D$"MON C,I,O"
350  PRINT D$"OPEN DO'ER"
360  PRINT D$"WRITE DO'ER"
```

```
MONITOR
*FFOOL
FF00-   A9 16      LDA   #$16
FF02-   20 C9 FC   JSR   $FCC9
FF05-   85 2E      STA   $2E
FF07-   20 FA FC   JSR   $FCFA
FF0A-   A0 24      LDY   #$24
FF0C-   20 FD FC   JSR   $FCFD
FF0F-   B0 F9      BCS   $FF0A
FF11-   20 FD FC   JSR   $FCFD
FF14-   A0 3B      LDY   #$3B
FF16-   20 EC FC   JSR   $FCEC
FF19-   81 3C      STA   ($3C,X)
```

OFFER AN APPLE II TO YOUR MACINTOSH
Boot Mac +][2.0 in your Macintosh and it becomes an AppleII. Insert the MacDos disk in your Macintosh drive and type PR#6, you have just installed DOS 3.3.

DO NOT TRY TO INSERT YOUR 5 1/4" DISKS in the Macintosh. We provide a communications software 'Mac Com' to transfer programs and files in the Macintosh floppies, from any Apple II + /e/c, through the Image Writer cable (very simple!) or modems.

YOU CAN RUN OR DEVELOP Applesoft, Integer BASIC, and 6502 machine language applications, and you have access to the Macintosh 68000 machine language, to add routines from the Macintosh toolbox to your Apple II applications.

IF YOU HAPPEN TO HAVE a 3 1/2" disk drive connected to your Apple II, Boot Mac +][2.0 in the Macintosh and read your 3 1/2" Apple II disks with the Macintosh. For example ProDOS!!

IF YOU DO NOT HAVE TIME to read the manual do not forget to install the interrupt-switch on your Macintosh, it is the Reset key of the AppleII.

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Mac +][1.0 works on 128K Macintosh. It does not allow page flipping operations, and emulates 48K.
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Mac +][is software only.

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P.O. Box 272591, Houston, TX 77277, (713) 526-5706 Telex: 4945935

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Circle 369 on reader service card

(continued from page 134)

tions. If you plan to use QuickWord with a terminal program, try the two programs together before making a purchase.

If you're a fast typist who likes to read as you type, QuickWord may be more distracting than helpful. But if you repeatedly use common phrases in your writing or regularly compose form letters containing repeated sections of text, QuickWord can save you time.—*Lon Poole*

QuickWord
Enterset
410 Townsend St.
San Francisco, CA 94107
415/543-7644
List price: $59.95

Effects for Your Easel

When I first saw a demonstration of T/Maker Graphics' ***ClickArt Effects,*** I didn't bother to disguise my eagerness to get a copy. My mouse finger was getting itchy. Here was a program that would let me cross several items off my *MacPaint* wish list.

ClickArt Effects works in conjunction with *MacPaint* as a desk accessory. Unlike most other desk accessories, this one appears only when you use *MacPaint*. When you run ClickArt Effects, *MacPaint*'s tool palette disappears. In its place are four new tools, which let you rotate any *MacPaint* image in 1-degree increments, slant a picture to the left or the right, create single-point perspective, or distort an image as if the picture were printed on a sheet of rubber and stretched (see "Rotations and Mutations").

(continues on page 139)

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(continued from page 137)

Installing Effects

Before you can use ClickArt Effects, you have to install it on the *MacPaint* disk. The installation process is easy: copy the ClickArt Effects Installer program onto the *MacPaint* disk and click Install when the dialog box appears. Since ClickArt Effects is installed as part of *MacPaint*–adding about 10K to the program–you have to repeat the procedure for each copy of *MacPaint* you have. Or you can create one Effects-enhanced version of *MacPaint* and then replace the other copies of *MacPaint* with it. You can also use the Install program to remove ClickArt Effects from the disk, should you ever want to. ClickArt Effects worked with all the versions of *MacPaint* I tried–1.0, 1.3, 1.42, and 1.5.

Slanting, Distorting, and Rotating

Whenever you want to use Effects, you position the object you want to alter in the *MacPaint* drawing window and then choose ClickArt Effects from the Apple menu. Click one of the four Effects tools, draw a selection rectangle around the object you want to manipulate, and start tugging and pushing with the mouse. You can put Effects to work slanting, distorting, and rotating either text or graphics.

If you don't like the way Effects has altered the picture, you can always start over by selecting Undo from the Edit menu. Undo is the only *MacPaint* command available when you use ClickArt Effects. Once you surround an object with the selection rectangle, you can keep adjusting until the graphic is the right size and shape. Once you click another Effects tool or exit ClickArt Effects, the changes are permanent.

Depending on how you use ClickArt Effects, the results may look a little ragged around the edges. The program does quite a bit of computational magic to rotate and distort *MacPaint* images, but it isn't perfect. The altered pictures can contain pixels you need to remove or holes you need to fill. I call these out-of-place pixels the "jaggies."

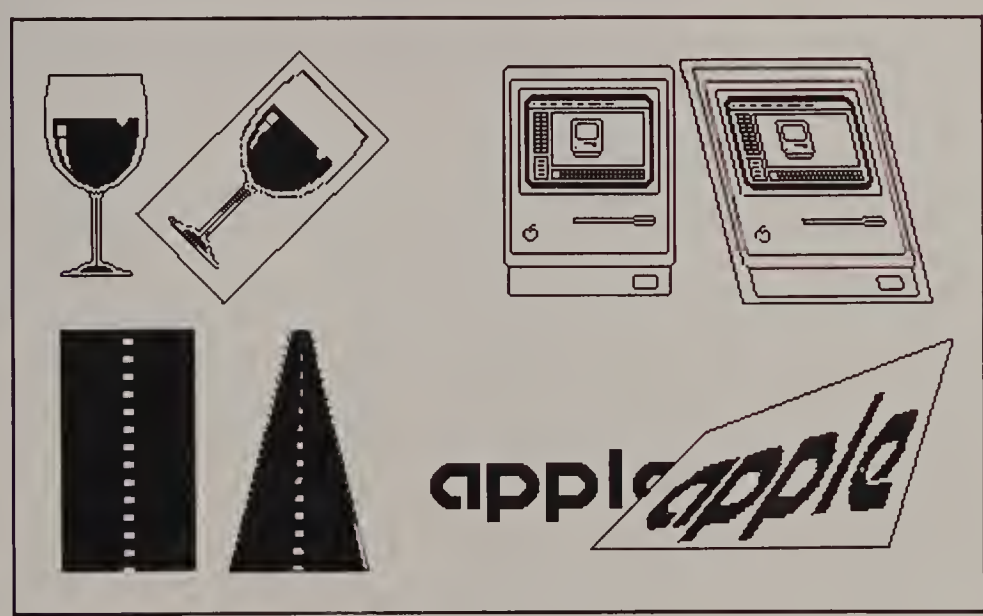
The jaggies are easy to get rid of, although the process can be tedious. Use FatBits for cleanup work. If your picture includes a pattern, erase the pattern before using Effects. Then manipulate the image as desired and refill the object.

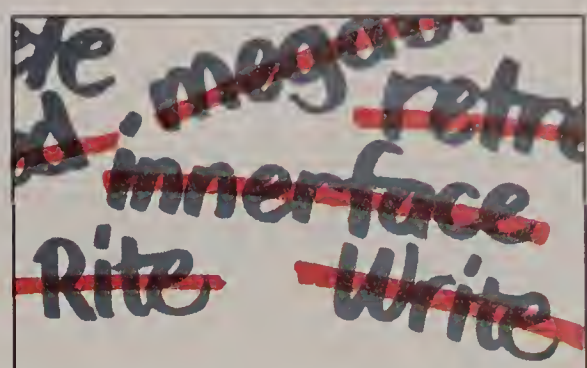
After a bit of experimenting, I found that the jaggies were worse when I used the Distort tool and when I altered a pic-

(continues on page 141)

Rotations and Mutations

ClickArt Effects adds four tools to MacPaint: *Rotate, Slant, Perspective, and Distort. To use a tool, you click it, surround an image with the selection rectangle, and manipulate the image with the mouse.*





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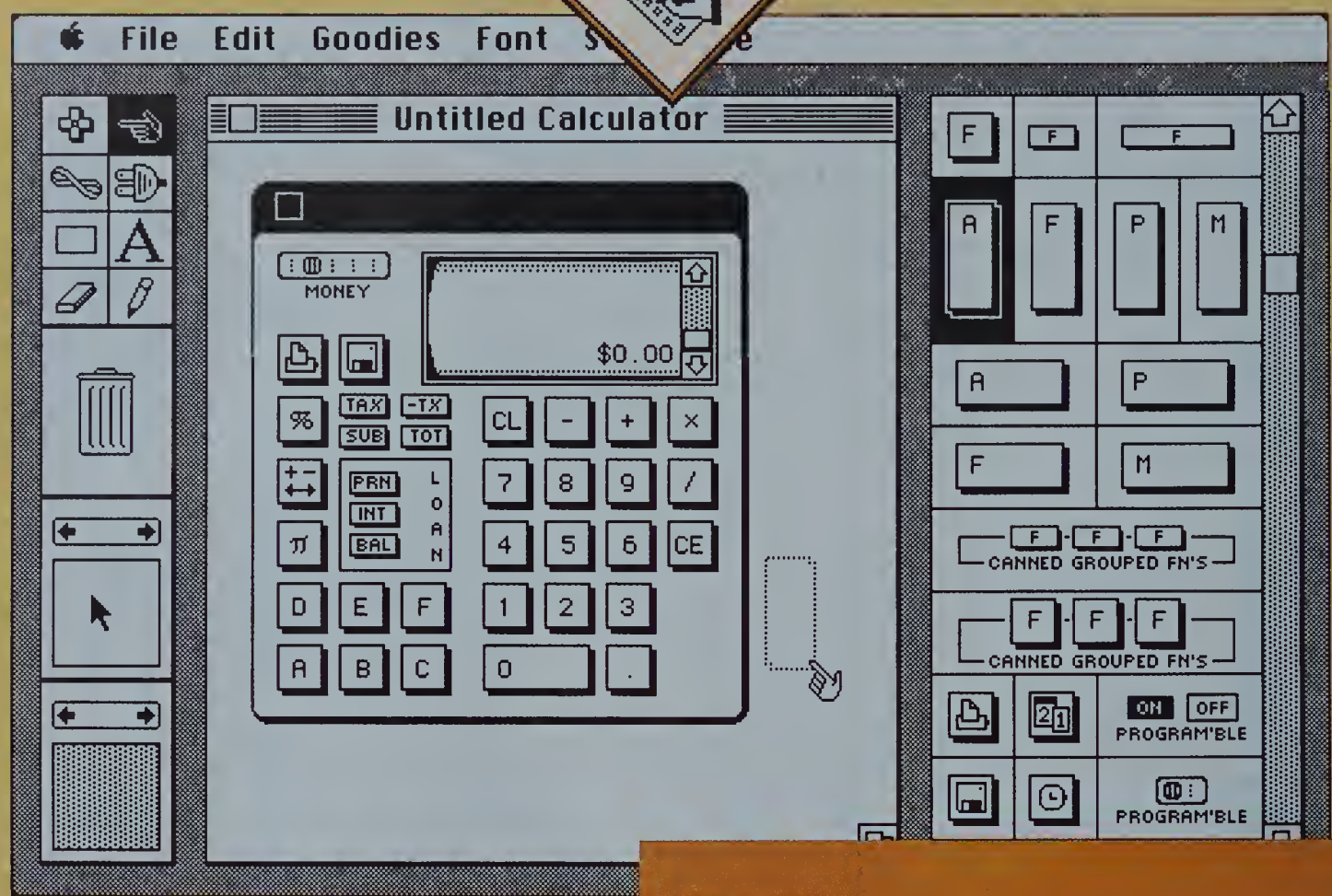

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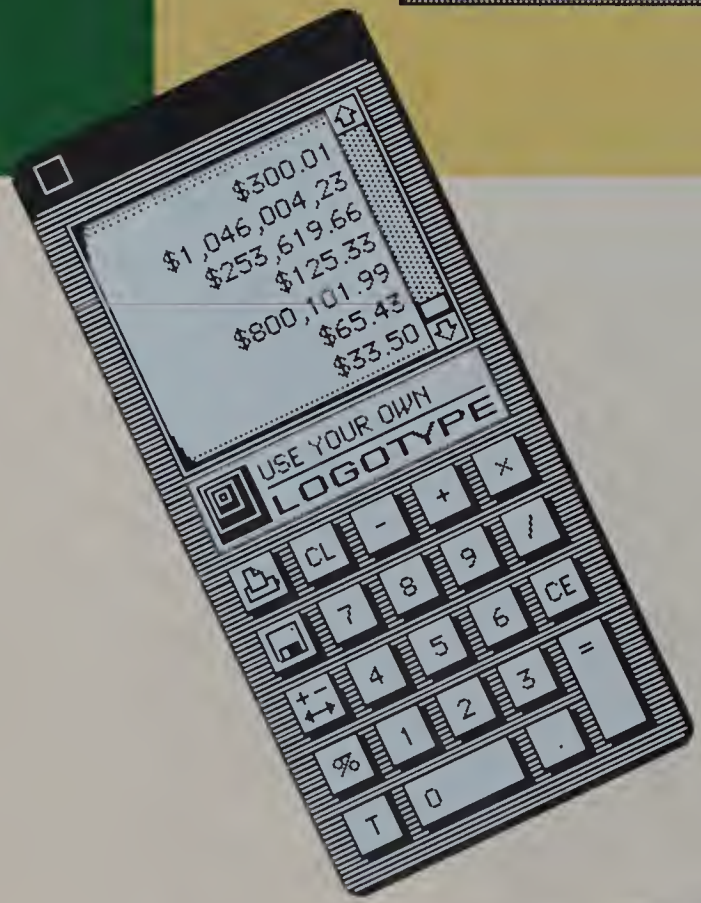

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Customize your calculator's case using *MacPaint*™ style tools for drawing, painting, erasing, fatbitting, filling, stretching, and typing text. You can even design your own custom cursor to use with your calculator. Calculators may be saved as workfiles (allowing future changes), *Font/Desk Accessory Mover* files, or as self-installing calculator files. Several sample calculators are included.

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(continued from page 139)

ture with more than one tool. For example, if you rotate, distort, rotate again, and then slant a picture, the result will most likely be an unrecognizable mess. The program's documentation doesn't hide this limitation. In fact, it includes several tips on how to get around the problem.

Effects' Limitations

Other than the jaggies, there are only minor limitations to ClickArt Effects. First, you can't use any of *MacPaint*'s commands or features when Effects is active. If you need to add a pattern, for instance, you have to exit Effects, use the appropriate *MacPaint* tool, and then reenter Effects. If you find yourself shuttling back and forth, record the maneuvers with Assimilation's Mac Tracks desk accessory, which records sequences of mouse movements and converts them to simple keyboard commands.

Another limitation is that, like *MacPaint,* ClickArt Effects can't work with an image larger than the *MacPaint* window. If you want to manipulate a large picture, you have to do it in chunks. The process can be tricky because it's hard to manipulate different pieces in exactly the same way.

ClickArt Effects adds a lot to the already powerful *MacPaint,* and it does so in an unobtrusive, easy-to-use way. Applied carefully, the tricks you perform with this desk accessory can save you time and energy and make *MacPaint* sessions more productive. In addition to spicing up *MacPaint* drawings, Effects should prove valuable to *VideoWorks* animators who paste *MacPaint* images into their productions. I think ClickArt Effects is a must for anyone who uses *MacPaint*—whether a casual doodler or a master artist. Just watch out for the jaggies.—*Gordon McComb*

ClickArt Effects
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Mountain View, CA 94043
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List price: $49

(continues on page 144)

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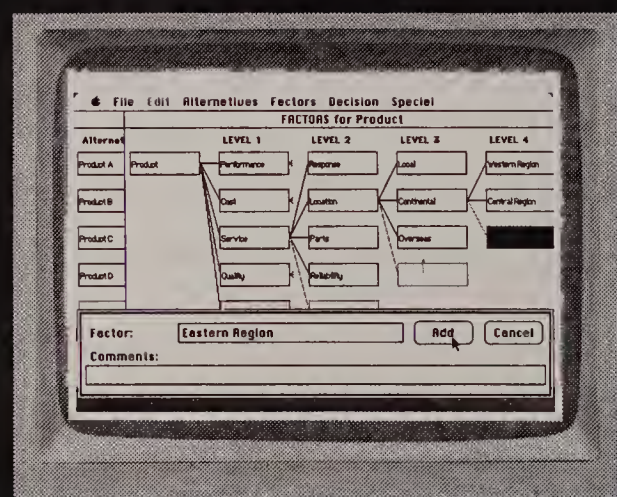
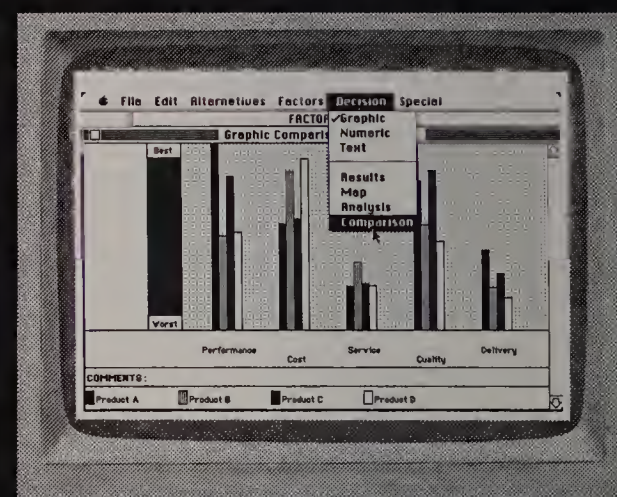


When you're choosing the best alternative, you input the evaluation factors and weight the importance of each.



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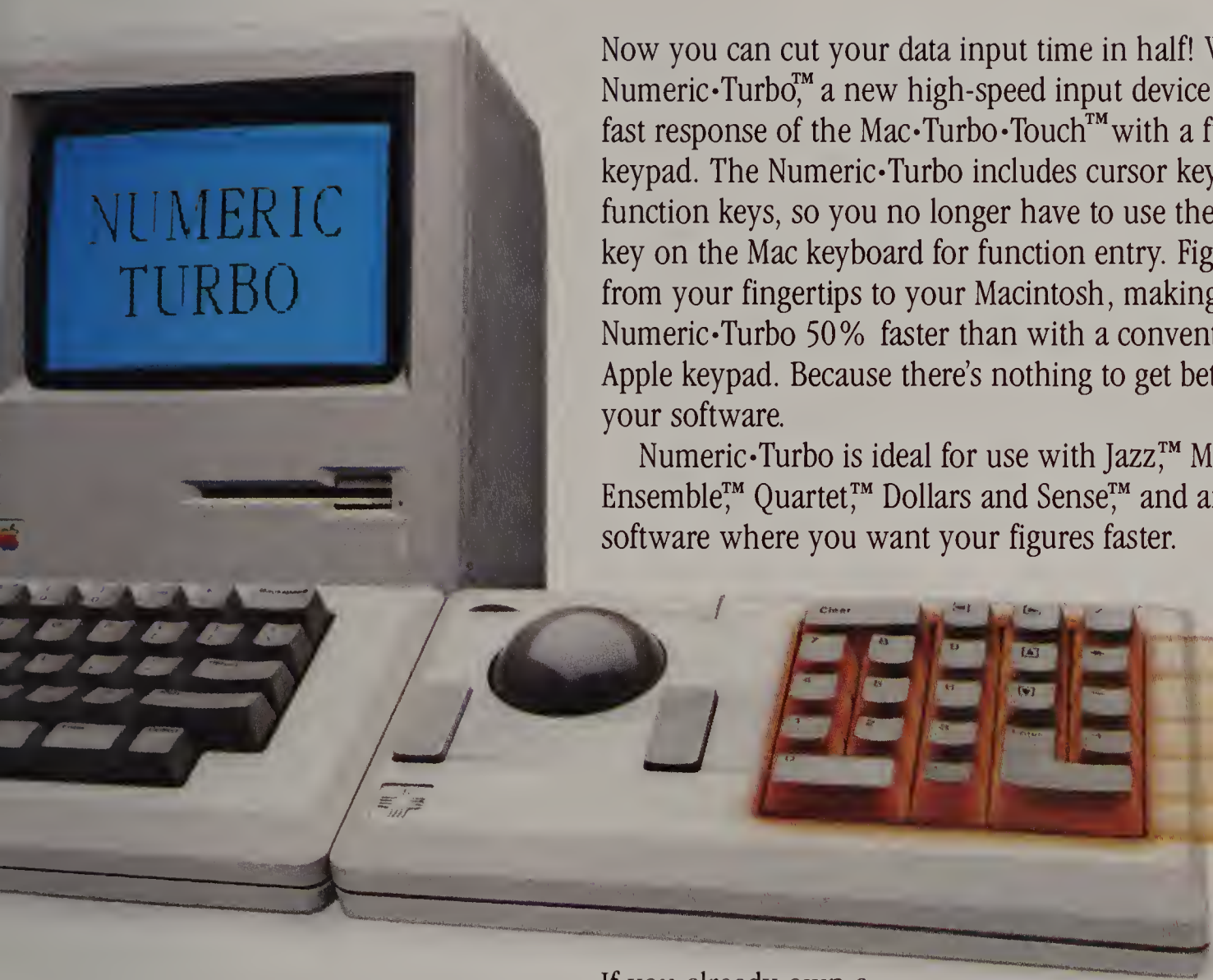

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(continued from page 141)

Beyond Space and Time

Have you ever noticed that there are only a few types of computer games? Despite the large number of game titles, each falls into a well-worn niche that might more accurately be called a rut. In arcade games you shoot down alien invaders or chase Sugar Pops through a maze with a smiley face. In adventure games you participate in a quest by searching for clues that eventually lead to your objective. Most other games are strategy games, such as chess, trivia, or blackjack, in which you test your wits against the computer's. When I recently discovered a game that seems to combine those genres, my interest in games was reawakened from what had become a deep slumber.

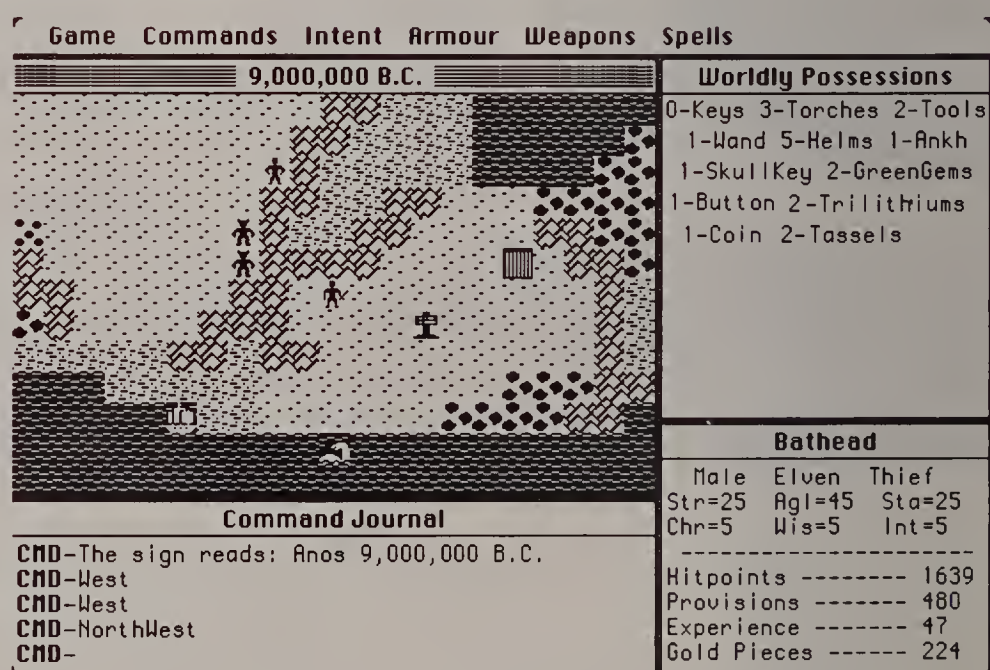
Ultima II, from Sierra On-Line, mixes the real-time action of an arcade game with the goading mystery of an adventure game. The object is to find and kill an evil enchantress. First you create a character who engages in exploits and eventually kills the enchantress. You choose the character's race, vocation, and attributes, ending up with a character such as an elvish wizard who is more agile and strong than intelligent or charismatic. Once created, your character appears as a small figure on a map of one of Earth's continents, roughly sketched to show forests, mountains, and seas (see "Nine Million Years B.C."). You move from continent to continent by pointing and clicking. The mouse commands you give are recorded in a command journal. Unlike most adventure games, you use the mouse for all game interaction. The lack of typed commands means you don't get to use your imagination to find solutions because all commands are already prescribed in menus.

War and Peace

During extensive cross-country travels, your stand-in encounters antagonists such as thieves, demons, devils, and sea monsters. You fight them by repeatedly clicking on the enemy until conflict is resolved. If you are victorious, you acquire the spoils, which may include gold and magical items essential to the quest.

Although *Ultima II* is not designed to be an arcade game, it works like one in that

(continues on page 146)



Nine Million Years B.C.
In this Ultima II *game the player has taken the role of an elvish thief named Bathead, whose attributes and possessions are listed on the right third of the screen. The action unfolds in the upper-left window where Bathead, the small figure with the knife in the center of the scene, is separated from a few adversaries by a mountain range.*

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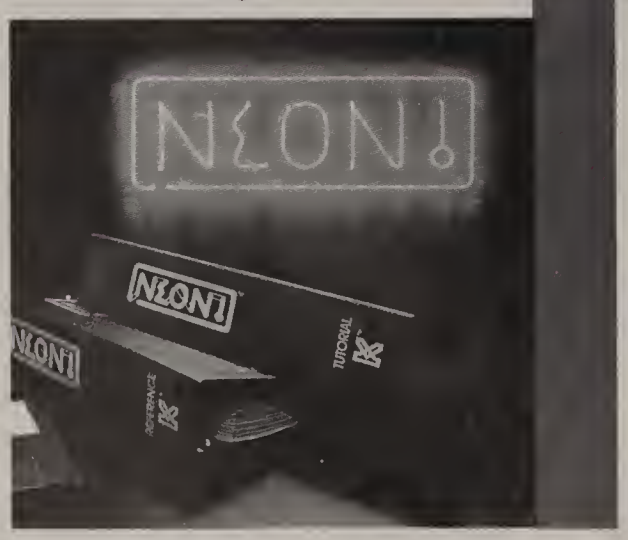

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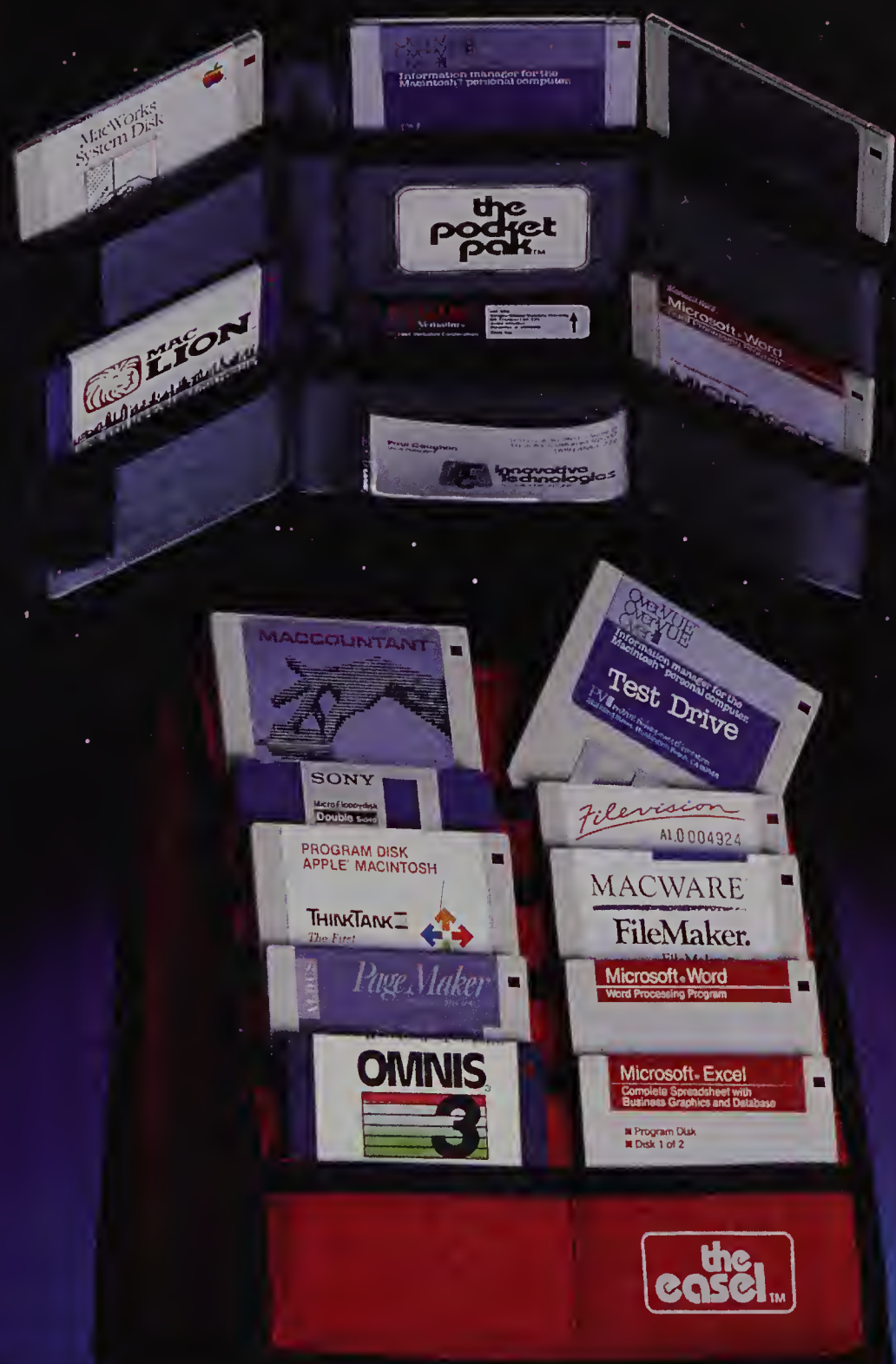

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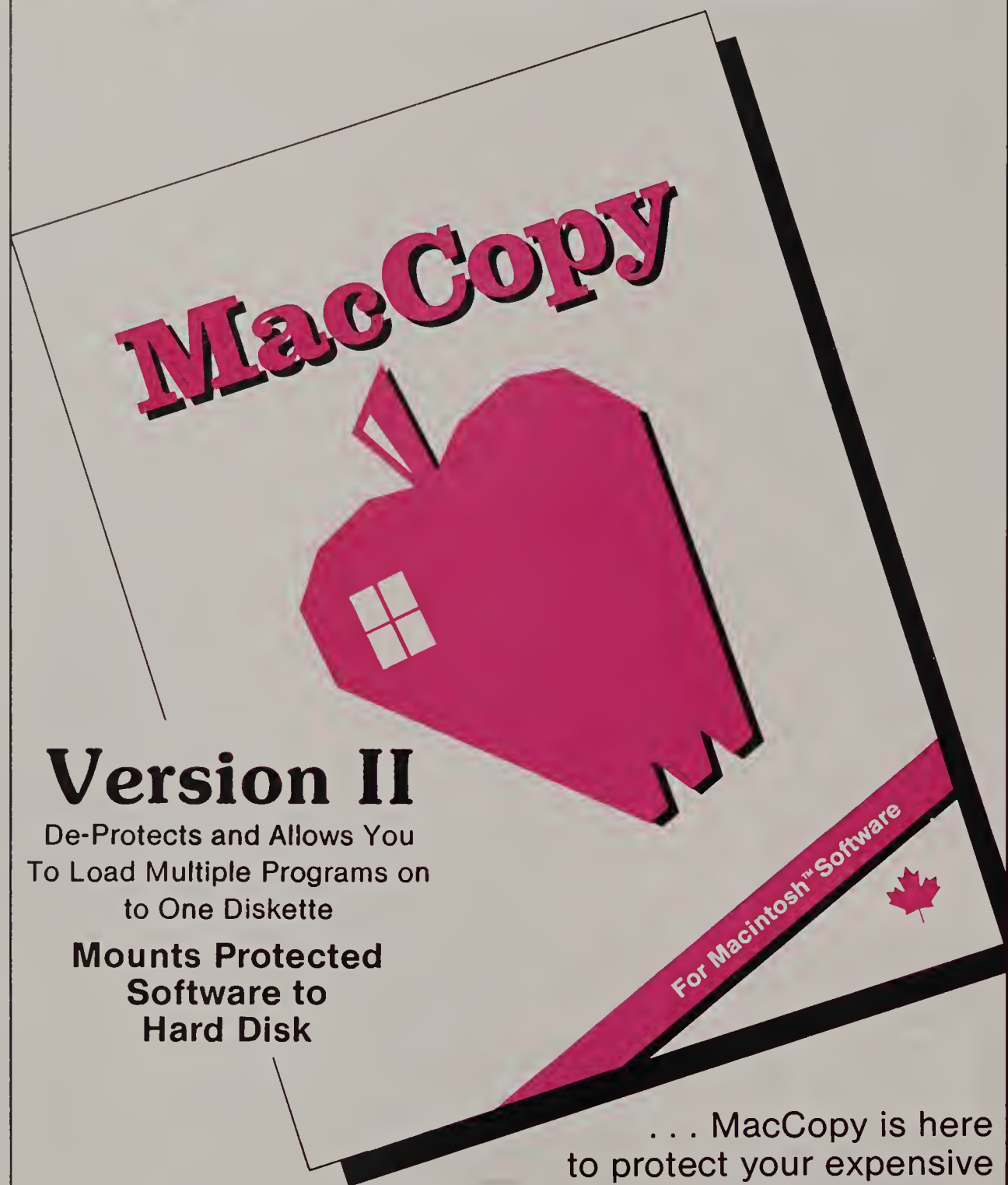

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(continued from page 144)

you maneuver your character on screen to avoid or challenge adversaries. Once you engage in combat, however, the program takes over, requiring none of the hand-eye coordination usually associated with arcade games. I had to spend far too much time bludgeoning enemies to accumulate gold and charms, an activity that requires no skill. In the course of a game, you may click your way through thousands of battles, adding up to hours of boredom.

As you traverse the world's surface, you discover villages, towns, and castles. Keep an eye out for villages. They're easy to miss because they resemble forests. When you double-click one of those places, you enter a more detailed level of play. A layout appears with buildings, walls, and walkways. Depending on the location, you can buy weapons, armor, hitpoints, food, transportation, and spells. Villages, towns, and castles are populated mostly with peace-loving citizens who often have invaluable advice. You return to the world's surface by stepping outside the boundaries of a place. Here are a couple of tips: though guards are fearsome combatants, fighting them is often the key to getting locked treasure, and stealing is often more profitable than paying a fair price.

World Farer

The quality I like best about *Ultima II* is its multidimensionality. Not only do you explore cities and continents, but you can enter different eras by passing through the time doors that appear intermittently on screen. The game spans several time periods, from the prehistoric past to post-nuclear holocaust. In each period the geography of the continents is different. In some the differences are minor, such as the presence or absence of a land bridge at the Bering Straits. But proving that fiction is at least as strange as life, in one period the continents are merged into the super continent of Pangaea. You can also travel to different planets, once you discover how.

(continues on page 152)

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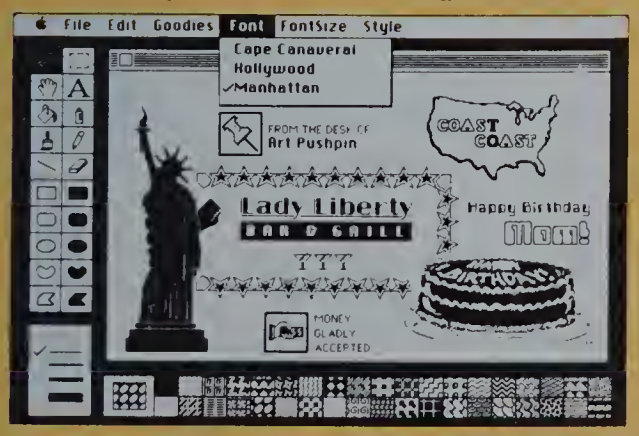

choose from – great for presentations, business graphics, ads, coupons, flyers or just plain fun.

If you do a lot of word processing on your Mac, you've probably noticed that although the Mac has a lot of typefaces, you really don't have the flexibility someone with expensive real typesetting equipment has. That's where **Mac the Knife, Volume II: World-Class Fonts** comes in. Two dozen fonts in all kinds of

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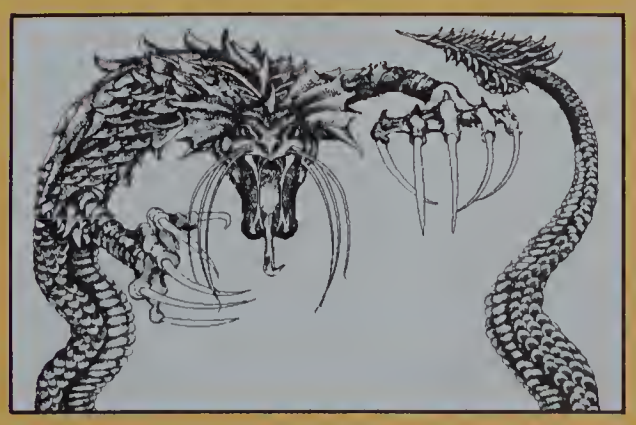
And finally, if you use your Mac in any one of a number of creative ways, you've probably noticed that if you can't draw, trying to bring life to your ideas in MacPaint can be frustrating. Yes, that's



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(continued from page 146)

In addition to different time periods, the game has dungeons and dark towers. You enter a dungeon or a tower by double-clicking it. Once inside, you explore a three-dimensional maze, where you do combat with more strange creatures. You can spend hours finding your way around the dungeons and towers with little reward. In fact, though they add dimension to *Ultima II,* the interior landscapes are superfluous to the successful completion of the game. Considering the complexity of the mazes and the amount of difficulty required to negotiate them, they should be more completely integrated into the outcome of the game. After being led down such a long dark alley with so little reward, you may feel like condemning the game designers to live out the rest of eternity within their own creation.

The incidental nature of the towers and the dungeons and the long hours in mindless combat reduce *Ultima II* to a test of patience rather than a challenging puzzle. It's a shame because the way the game weaves worlds within worlds is intriguing enough to incite the curiosity of most game adventurers. Despite those drawbacks and the game's ordinary graphics and sound, *Ultima II* is worth examining if you enjoy multidimensional games or if you're interested in game design. However, after you finish the game, you may regret all the uninspiring time spent dispatching villains and accumulating wealth.—*Adrian Mello*

Ultima II
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(continues on page 154)

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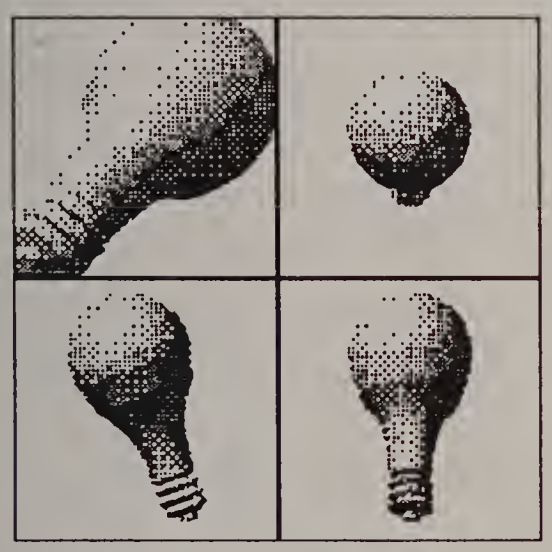

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Circle 403 on reader service card

(continued from page 152)

Williams & Macias

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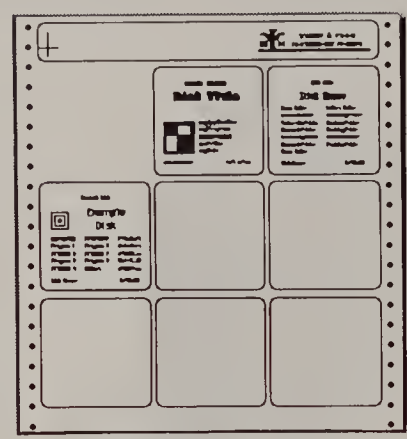

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One of the first educational games my children played was the Sesame Street collection for the Apple II. Those computer variations of word and logic games like hangman and towers of Hanoi stand out in my mind because my two girls played them over and over. Though the girls are older now, they showed the same kind of interest when I recently brought home a collection of eight arithmetic and word games recommended for children from 4 to 14 years old, ***MacEdge II*** from Think Educational Software.

Number Games

Count on Mac II teaches children to recognize the numerals 0 to 9 by having them count familiar objects, such as ice cream cones, and then choose a corresponding numeral. The game also provides practice in addition and subtraction, using objects instead of numerals.

In Table Race, players move a picture of a small car horizontally or vertically through a race track made up of squares. With each move, a simple addition or multiplication problem is displayed. A player must solve the problem to advance to the next square in the race track. The computer keeps time, and the best time wins. A wrong answer returns the car to the previous square, which costs time and creates an incentive to keep trying for correct answers.

The other three arithmetic games, Give 'n' Take II, Good Times II, and Dividing Line II, introduce addition, subtraction, multiplication, and long division. Each game covers different arithmetic operations, although the programs look alike. The three games are basically automated drills that can take the place of flash cards and teach children basic arithmetic skills.

(continues on page 156)

For all of you who thought Dennis Brothers was crazy to give away MacTEP,™ here's MicroPhone.™ The one he's selling.

When the Macintosh first came out, the most powerful personal computer ever built didn't have the brains to make a phone call.

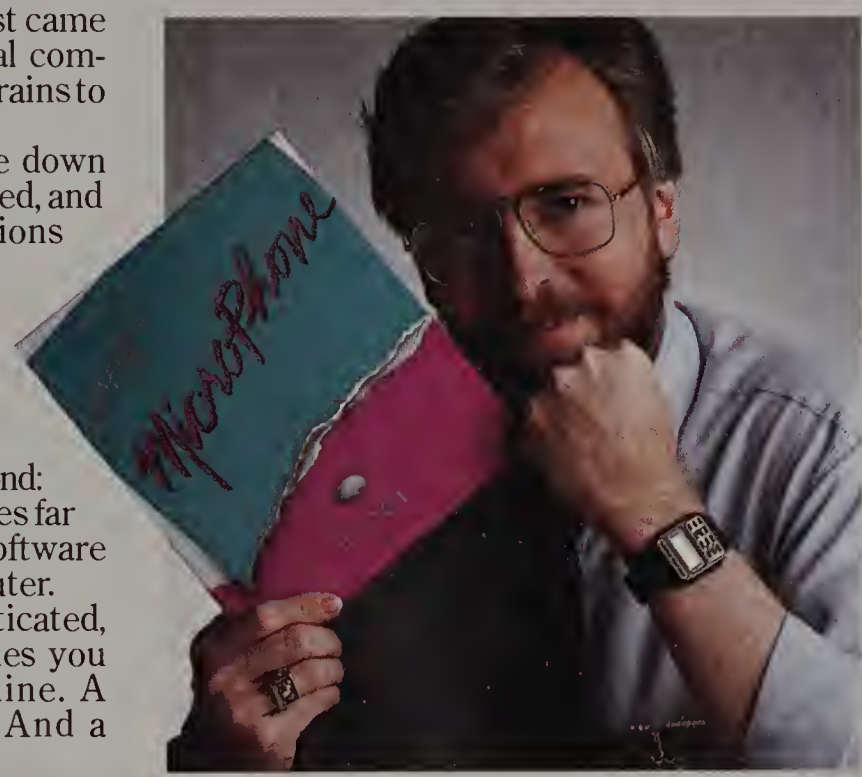
So Dennis Brothers tore down his Mac, figured out how it worked, and wrote Mac's first communications program, MacTEP.

Which he proceeded to give away.

MacTEP was a classic. The first standard in Mac communications.

Now he's created the second: MicroPhone. A program that goes far beyond any communications software currently offered for any computer.

MicroPhone is so sophisticated, it cuts through the worst tangles you encounter when you go on-line. A delight to the experienced. And a saviour for the novice.



Run on automatic.

When you open MicroPhone to the desktop you'll find a comprehensive collection of icons pre-programmed to access all major information services: CompuServe,® Dow Jones News/Retrieval,® The Source,℠ Delphi,™ the works.

A few clicks and you're in. With automatic log-in and sign-on.

But that's just the beginning of its ability to automate the whole telecommunications process. For MicroPhone features the most powerful, yet simplest to set up macros ever seen on a program.

Write your own script.

Dennis gives you two ways to create these macros. The first is to set MicroPhone in the Watch Me,™ the recording mode.

The program looks over your shoulder as you conduct a communications session following your keyboard and menu commands.

MicroPhone can remember not only an uninterrupted string of keyboard commands, but also wait-for-prompt conditions. In fact, virtually any series, no matter how long or complex.

The entire sequence is saved. To be invoked at any time with a single key command.

The second way to generate macros is through MicroPhone's unique "Script" window. Open it and you'll discover an extensive set of functions which can be called up and linked with a series of mouse clicks. The resulting macro is extremely powerful. The method is Mac-simple.

Using Watch Me or the Script window, or a combination of both, you can automate log-ons, file transfers and unattended operations. And navigate back into the farthest reaches of any database with a single stroke.

Make files fly.

Sending and receiving files is faster and easier with MicroPhone, too. Using XMODEM protocols and MacBinary, MicroPhone transmits or receives anything you can create on a Macintosh. Including MacPaint documents, text, spreadsheets, charts, database tables, or programs.

MicroPhone allows you to scroll back and forth at high speed to review your session. Then you can select any portion of your session, print it, save it to a file, or copy it to the Clipboard for use by other Macintosh programs.

MicroPhone also features an editor desk accessory for composing text in mid-session using familiar Macintosh editing techniques.

But enough talk. See for yourself what Dennis Brothers has done now to advance the cause of telecommunications. Just take any major credit card in hand and call us toll free to place your order.

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(continued from page 154)

Word Games

The first of the three word games, Alphabet Train, is a simple fill-in-the-blank alphabet game that teaches children how to recognize the order of uppercase and lowercase letters in the alphabet. In a variation of the game, players type the missing number in a sequence. The game also acquaints students with the placement of letters and numerals on the keyboard (see "Alphabet Train").

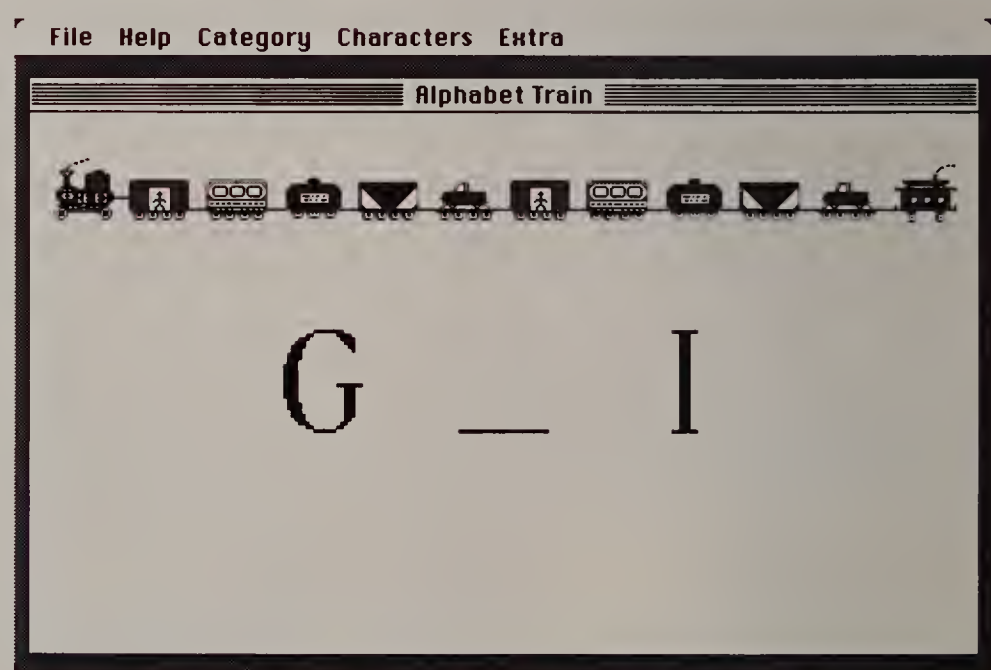
Another word game, Word Wonder II, is a version of the word grids found in children's magazines. Words are hidden vertically or horizontally inside an eight- by eight-letter grid. A set of sentences with blank spaces for the missing words appears at the lower right-hand corner of the screen. Players find the hidden words within the grid and select them by dragging the cursor over the letters with the mouse. When a player makes a correct choice, the program fills the blanks in the sentences and gives encouragement.

A word game called Memory Match II, similar to the game of Concentration, was the one my children liked best. Players match words hidden under 18 movable tiles by clicking two tiles with a pointer. The words under the two tiles appear for a few seconds and then return to hiding. Players remember words uncovered in previous turns to take advantage of the accumulation of discoveries. A successful match results in a point for the player and removes the matched words for the duration of the game. You can choose variations on the game that require different types of matches, including identical pairs, synonyms, antonyms, homophones, contractions, compound words, numbers and letters, and icons.

Covering the Wonder Years

The manufacturer of *MacEdge II* claims that the eight games cover a considerable age span—4 to 14 years old. That range is a bit ambitious. Based on my children's experience, the simplest games seem appropriate for 4-year-olds, and the most difficult games were appropriate for age 12. The simplest letter and number recognition games were too easy for my 7-year-old, Tess. But she enjoyed playing those games for that very reason, making fun of how easy they were. She also liked the games because they reminded her of

(continues on page 158)



Alphabet Train
Each time a child correctly completes an alphabetic sequence, a new train car moves onto the screen. When the caboose is finally added, the train chugs across the screen.

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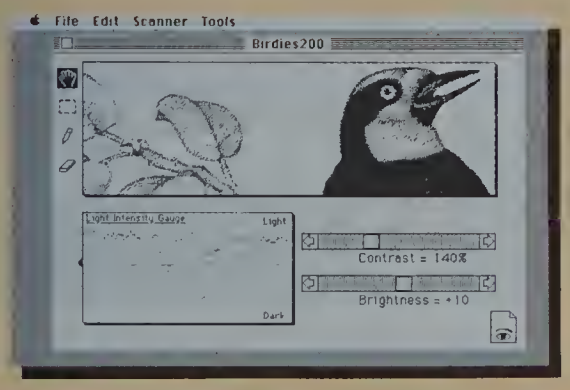
Hertzfeld on ThunderScan™

After three years on the Macintosh development team, Andy Hertzfeld began to work on the software for an easy-to-use, low-cost way to put images into Macintosh. The result: ThunderScan.™ The high-resolution optical scanning device that turns the ImageWriter printer into an image reader. Recently, Andy shared some thoughts on the product he's dubbed, "MacPaint for the rest of us."

"...I was incredibly thrilled. I knew it would blow people's minds."

"I spent over three years developing Macintosh's operating system. I care a lot about Mac and wanted people to be able to use it to its full potential. But how do you get images into the machine? Most people can't draw. That's why I got involved with ThunderScan. To give people, especially non-technical users, an easy, low-cost way to get high-resolution images into Macintosh. When I first saw how beautiful ThunderScanned images were, I was incredibly thrilled! I knew it would blow people's minds."



ThunderScan's image processing tools let you enlarge, reduce, cut, paste, select, draw, scroll and erase, as well as control contrast, brightness and half-toning.

"You get to make artistic decisions. To change and improve what you see."

"Macintosh inspires creativity. ThunderScan is a vehicle for its expression. It lets you put any printed image into Mac. But you're never stuck with the image as is. You get to make artistic decisions. To change and improve what you see. You can control the contrast, brightness and half-toning. Over all or just parts of the image. Even create reverse images and outlines. It's really fun. But the great thing is, when the novelty wears off, you have a useful tool.

"ThunderScan has a whole range of applications. Some people use it for inserting graphics into newsletters and reports. I know a fine artist at Stanford who makes collages with it. I use it a lot, too. The way I write a program is an expression of who I am, so in my new "Switcher" program, I included a ThunderScanned image of myself."

"...With LaserWriter you can create unbelievably exquisite images."

"We now have an enhanced version (available as a software upgrade for current users) that has some neat new features. It supports AppleTalk, the wide-carriage ImageWriter and LaserWriter. The output resolution of LaserWriter and ThunderScan's input resolution are a perfect match. So with LaserWriter you can create unbelievably exquisite images.

A scanned image is just the start. Now you have micro-control over 32 shades of gray to enhance all or part of the image as you please.

"ThunderScan is a complete imaging system. You don't have to buy anything else. You just snap out ImageWriter's ribbon cartridge and snap in ThunderScan. It fits in any office or home environment, takes up no space and the lighting is always perfect.

"Developing ThunderScan was a lot like developing Macintosh. We were doing something for the first time. Making an important tool. We think we did a good job."

ThunderScan requires 128K. But to take full advantage of all its features, you'll need a 512K Mac.

Available now through computer retail stores or directly from Thunderware for just $229. To order or for more information, call today (415) 254-6581. Thunderware®, Inc., 21 Orinda Way, Orinda, CA 94563.

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ThunderScan™

Circle 167 on reader service card

(continued from page 156)

the computer games she plays at school. My 10-year-old girl, Sara, thought that the *MacEdge II* games taught her something and were fun. However, while the most difficult games were a little beyond Sara's reach, they weren't far beyond.

Sights and Sounds

Effective graphics and sound are important elements of educational games because they capture children's imaginations and hold their interest. *MacEdge II* uses both graphics and sound smoothly and effectively, not taking too much time with distracting animation or tunes yet giving ample visual and aural rewards. For example, in Alphabet Train one car of a train chugs onto the screen for every correct answer. When the train is complete, it tootles off the screen with a cheerful refrain in four voices.

The simpler games provide plenty of flashing lights and music. In some cases rewards correspond to playing time. Some of the more difficult games are set up as contests, with up to four players competing for fast, accurate answers. For instance, one child can play Table Race against either a clock or another child.

All in all, *MacEdge II* is a good collection of games for children. The games offer enough variety and challenge to retain kids' interest and also to make the learning of basic skills an enjoyable experience.

There is one other benefit of educational computer games: when the children who play on computers later face their first spreadsheet, they won't be intimidated like their parents probably were. *—Rob Swigart*

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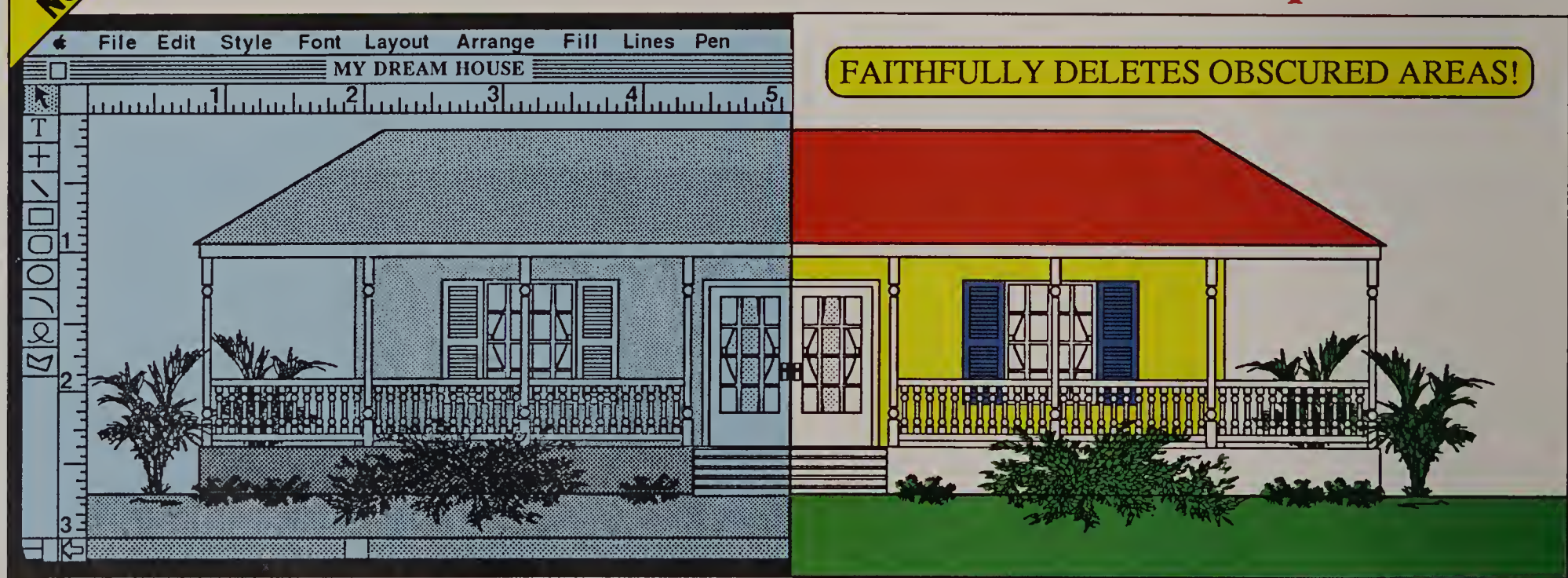

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Circle 303 on reader service card

Open Window

Jazz conversions, keyboard help, and a game to improve your concentration

Edited by Jim Heid

Open Window *offers tips to help you use your Macintosh more efficiently. Submitted by readers, industry experts, and the* Macworld *staff, items in this department address all facets of Mac work, from applications to programming routines to capabilities of the Mac and software not covered in the documentation.*

This month's column includes a tip explaining how to speed up the conversion of SYLK-format documents to *Jazz* documents, useful information about the Mac's Desktop file, and a handy utility program that keeps the desktop in order. For feature hunters, we share a reader's discovery of hidden capabilities of *Microsoft Word* and *Microsoft File* and another reader's insight into *MacWrite*'s decimal tabs. Also this month, we feature a discovery of still more keyboard shortcuts in Microsoft BASIC (MBASIC) 2.0, as well as more on using the Mac with the Radio Shack Model 100 portable computer. Finally, we pit human versus Mac in an MBASIC game of concentration.

Speeding Up Jazz's Tempo

I've been using the Convert desk accessory included with Lotus's *Jazz* to convert some of my *Microsoft Multiplan* worksheets, which I have saved in SYLK format. I find that the time required to convert a document in SYLK format into a *Jazz* worksheet can be excessive, especially if the document contains extensive cell formatting, such as dollar signs, centered numbers, and commas.

To decrease the conversion time, remove all special formatting from the *Multiplan* document before saving it as a SYLK file. Then, using the Format command in *Jazz*'s Range menu, restore the formatting after converting the document to *Jazz* format. The easiest way to remove the formatting from the *Multiplan* document is to select the entire document, then choose General from the Format menu.

Kevin Pickett
North Platte, Nebraska

It's true that Jazz *takes longer to convert formatted documents. According to my stopwatch, an unformatted test worksheet converted in 14 seconds, while its formatted counterpart required 38 seconds. Whether this tip really saves you time, however, depends on how your original worksheet is formatted. If the formatting is simple—perhaps a column or two of right-justified, currency-formatted numbers—the tip is worth using. If the formatting is complex, with many individual cells formatted differently, it may be more effort than it's worth to manually restore the formatting. In that case let* Jazz *convert the formatted SYLK document and take a break while* Jazz *performs the conversion.—Ed.*

Dusting the Desktop

Have you ever been the victim of the message "Not enough memory to eject this disk" or "Not enough memory to remember this disk"? The villain is the disk's Desktop file. This "invisible" file contains information about the icons and the folders on the disk, including their names and their locations on the desktop. The Desktop file also contains a copy of the icon for each type of file stored on that disk.

Because the Finder doesn't remove an icon from the Desktop file even after you delete every file that uses that icon, the Desktop file doesn't shrink. If you frequently add and delete files, the Desktop file can grow large enough to prevent the Finder from ejecting the startup disk or from remembering the desktop of an ejected data disk. Problems arise because the Mac stores most of the Desktop file in memory when you eject a disk, unless you throw away the disk's icon. If the disk contains a large Desktop file with dozens of old icons, there may not be enough memory to hold a large file, hence the error message.

The best solution is a program by Bill Pugh called *Purge Icons,* available through user groups and MAUG (the program is stored in Data Library 3 as NUPICN.BIN). *Purge Icons* purges the Desktop file of unused icons, freeing space on the disk and allowing the Finder to operate faster. If you can't get a copy of *Purge Icons,* you can create a new Desktop file by holding down the Option and ⌘ keys while inserting the disk. The drawback of this technique, however, is that the folder information will be lost.

Sally Weaks
Seattle, Washington

(continues on page 164)

Announcing the only devoted entirely to

Sponsored by MACWORLD, the Macintosh Magazine, January 16-18, 1986, Brooks Hall and Civic Auditorium, San Francisco

The Macworld Exposition returns to San Francisco for the second annual roundup of all the products and services for the Macintosh computer.

The Macworld Exposition is your chance to see it all in one place–software, hardware and peripherals for the Macintosh. See for yourself the products available now that will help you work faster, easier and smarter.

Products and services from companies such as Apple, Odesta, General Computer and Corvus will be on display. The show also features a special hands-on area with dozens of Macintoshes for everyone to use.

The Macworld Exposition program is designed to fit your busy schedule. As a dealer, a distributor, a retailer, a business user, or an educator, the three-day conference and exposition is designed for you.

Day one is for dealers, distributors, retailers, and other third-party vendors to talk to Apple and the 100+ exhibiting companies about their products.

Days two and three are specifically geared for people interested in the Macintosh as a tool for business and anyone else interested in the Mac.

Who should attend?

Industry: Dealers, distributors, retailers, wholesalers, manufacturers, systems houses, consultants, technical programmers, all other ISOs
Business: CEOs, presidents, vice presidents, managers, comptrollers, owners/partners
Professionals: Doctors, nurses, bankers, lawyers, engineers, stockbrokers, real estate and insurance agents, CPAs, consultants

Here's a sampling of what you will learn at the Macworld Expo:

- What software is available for the Macintosh for use in the office, school and home
- How to evaluate software before you buy it
- Tips on database management
- How to get the most mileage out of desktop publishing
- Tips on using the Macintosh in small businesses
- Tips on using the Macintosh in large organizations
- The advantages of networking
- Getting the most out of spreadsheet programs

computer show the Macintosh™

Here are some of the companies who will be showing Macintosh products:

Abaton Technology Corp.
Altsys Corp.
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A+/Ziff-Davis Publishing Co.
Apple Computer, Inc.
Applied Logic Systems
Applied Micro Solutions
Assimilation, Inc.
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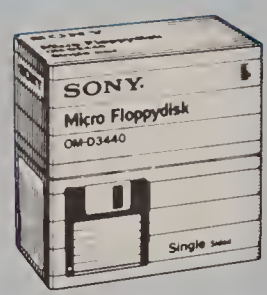

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(continued from page 161)

Some File Words

I like the way *Microsoft File* lets you create lengthy text fields, but I've always wished I could separate sentences and paragraphs with a carriage return. I can't press Return while entering data, since the insertion point moves to the next field in the record. However, I discovered that pressing Option-Return advances the insertion point to the next line.

Another keyboard-related tip deals with *Microsoft Word*. The hint isn't mentioned in the documentation but is buried in one of the help screens. With *Word* you can activate the buttons in dialog boxes using the keyboard. To switch disk drives at the Open or Save dialog boxes, for example, type ⌘-D. To eject a disk, type ⌘-E. To cancel a command, type ⌘-period. Also, you can type ⌘-1 to activate the leftmost button in a dialog box, ⌘-2 for the second button, ⌘-3 for the third, and so on. For example, to click the Change All button in the Change window—the fourth button from the left—type ⌘-4. With dialog boxes such as the "Save changes before closing?" query, you can answer yes by pressing *Y* and no with *N*.

The only situation in which the keyboard techniques fail occurs when you choose Save As and type an existing document name. In that case you can't respond to "Replace existing *file name*?" from the keyboard.

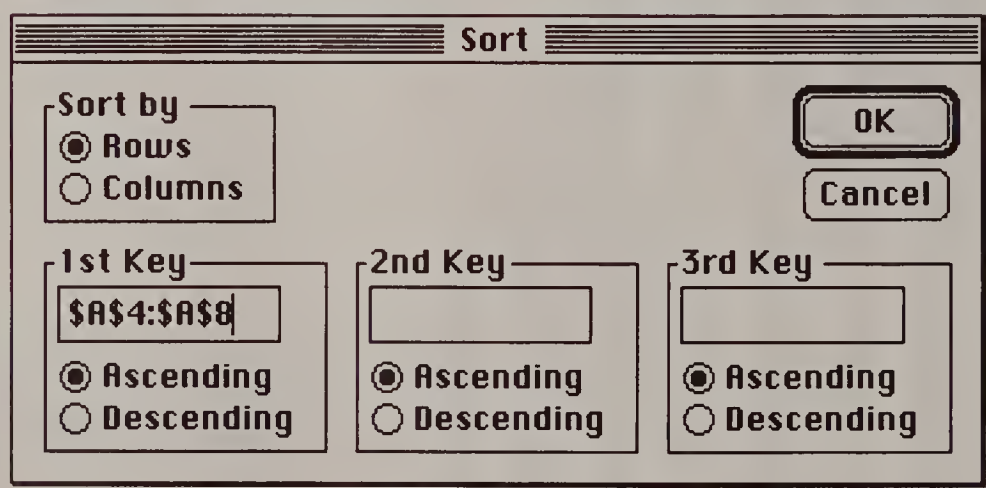
Joe Clark
Halifax, Nova Scotia
Canada

Microsoft File *provides many of the same shortcuts but is inconsistent. You can, for example, control the Help screens using the ⌘-1, ⌘-2, and ⌘-3 keys, but you can't clear the search criteria in the Find window using ⌘-2.*

Microsoft Excel *also provides keyboard shortcuts. For example, you can specify bold text from a formatting dialog box by pressing* B. *And remember* File's *and* Excel's *"localized undo:" you can undo the clicking of radio buttons or check boxes in a dialog box by clicking the heading that appears above the buttons or boxes (see "Excel Boxes").*

Here are two more undocumented File *tips: You can insert a tab character in a text field by pressing Option-Tab. You can use the feature to indent the paragraphs that the Option-Return keystroke combination makes possible. Finally, in the Sort window, you can select a sort field by pressing Return until the field is highlighted, then pressing the space bar. To reverse the sort order from ascending to descending, press the space bar again. To clear a sort field—that is, to tell* File *not to use a field for sorting—highlight the field and press Backspace.—Ed.*

(continues on page 168)



Excel Boxes
With Microsoft's Excel *and* File, *you can undo the clicking of radio buttons or check boxes by clicking on the word that labels a set of buttons or boxes. In this* Excel *dialog box, for example, clicking on "1st Key" would undo any typing in the text box and the Ascending or Descending button settings.*

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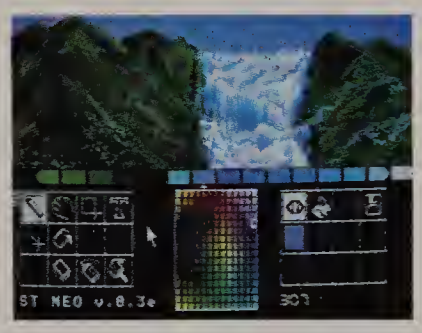

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Mouse	Yes	No	Yes	Yes
Screen Resolution (Non-Interlaced Mode) Color Monochrome	 640 x 200 640 x 400	 640 x 200 720 x 350**	 None 512 x 342	 640 x 200*** 640 x 200***
Color Output	Yes	Optional	None	Yes
Number of Colors	512	16	None	4096
Disk Drive	3.5"	5.25"	3.5"	3.5"
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No. of Sound Voices	3	1	4	4

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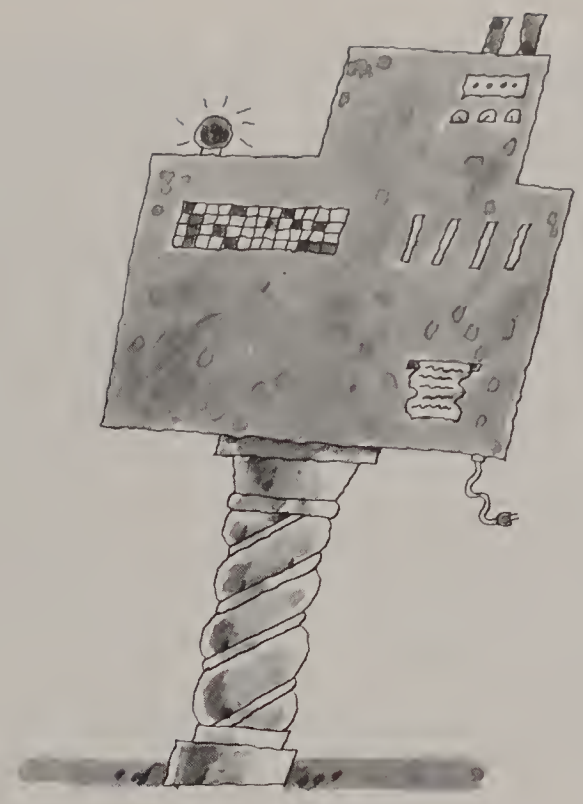
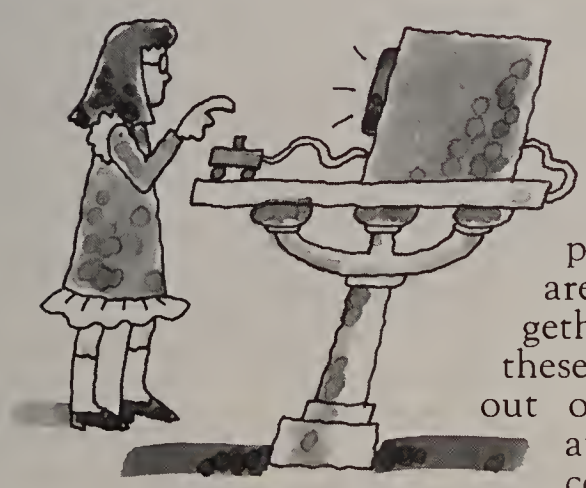
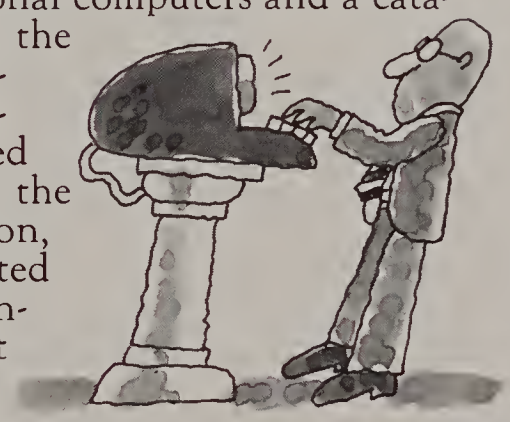


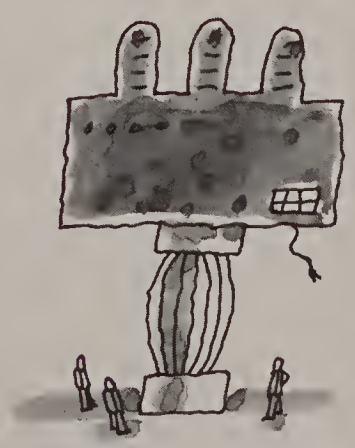
CW Communications, ComputerLand and The Computer Museum invite you to send in your early personal computers, software, and memorabilia — you could win a free trip to The Computer Museum in Boston

Your old, dusty "thinker toy" may now be ready to become a treasured museum piece. The Computer Museum in downtown Boston — an international museum dedicated entirely to computing — is searching for the very best and most unique relics of the personal computer revolution.



ComputerLand, CW Communications, and The Computer Museum are working together to bring these early relics out of your attic and into the collection of The Computer Museum. The museum is especially looking for kit machines, prototypes, programs, output, newsletters and memorabilia of early computing from around the world. A selection of the finest items will be used to create an exhibit on the evolution of personal computers and a catalog highlighting the Museum's collections. If your submission is accepted for addition to the Museum collection, you will be invited to the grand opening of the exhibit and will receive a bound edition of the catalog. If your item is selected as one of the five best "finds", you will also receive an all-expense-paid trip to Boston for the grand opening party.





So, get up to the attic, down to the cellar and into your closets, and tell us what you find! Call or write the Museum for an official entry form, or send a photo and description of your items by March 1, 1986 to: The Computer Museum, Personal Computer Competition, 300 Congress St., Museum Wharf, Boston, Massachusetts USA 02110, (617) 426-2800, Telex: 62792318.

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(continued from page 164)

More MBASIC Keyboard Shortcuts

I was excited to read about the keyword-entry shortcuts in MBASIC 2.0 (see "MBASIC Keyboard Shortcuts," *Open Window, Macworld,* May 1985) and even more excited when I discovered shortcuts for an additional 28 keywords (see "More MBASIC 2.0 Shortcuts"). When entering a program in the listing window, press Option along with the appropriate key. When you press Return, the special or accented character changes into a keyword.

Bernd Stueckler Morsbach, West Germany

Entering characters that have diacritical marks on the U.S. keyboard involves two steps. First you hold down the Option key and type the appropriate key for the mark you want. For example, type Option-u for the umlaut. Then type the character that goes under the mark. You can see the Option characters by choosing the Key Caps desk accessory and holding down the Option key.—Ed.

More on the Model 100

I was delighted to find Peter Vaktor's simple solution to the problem of adding line-feed characters to carriage returns when transferring information from the Model 100 to *MacTerminal* (see "Model 100 Update, Part II," *Open Window, Macworld,* July 1985). I've been successfully transferring Model 100 files to the Macintosh since.

I recently succeeded in uniting the Model 100 and the Imagewriter. Using two male DB-25 connectors, some ribbon cable, and a soldering pencil, I assembled a

(continues on page 170)

Option-character	Keyword
é	ELSE
ú	LEFT$
í	FIX
ó	GOTO
á	CLOSE
è	EOF
ù	LEN
ì	FN
ò	IF
à	COMMON
ë	FIELD
ü	LINE
ï	GET
ö	INPUT
ä	CVD
Ü	CINT
Ö	CHR$
Ä	ABS
ê	EXP
û	LET
î	FOR
ô	INKEY$
â	COS
É	CAL
ñ	GOSUB
õ	INT
ã	CVI
Ñ	CDBL

More MBASIC 2.0 Shortcuts

You can enter many MBASIC keywords by holding down the Option key while typing the key corresponding to the desired diacritical mark, then typing the letter and pressing Return.

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- ☑ Create Dialog Boxes
- ☑ Pause for Interval
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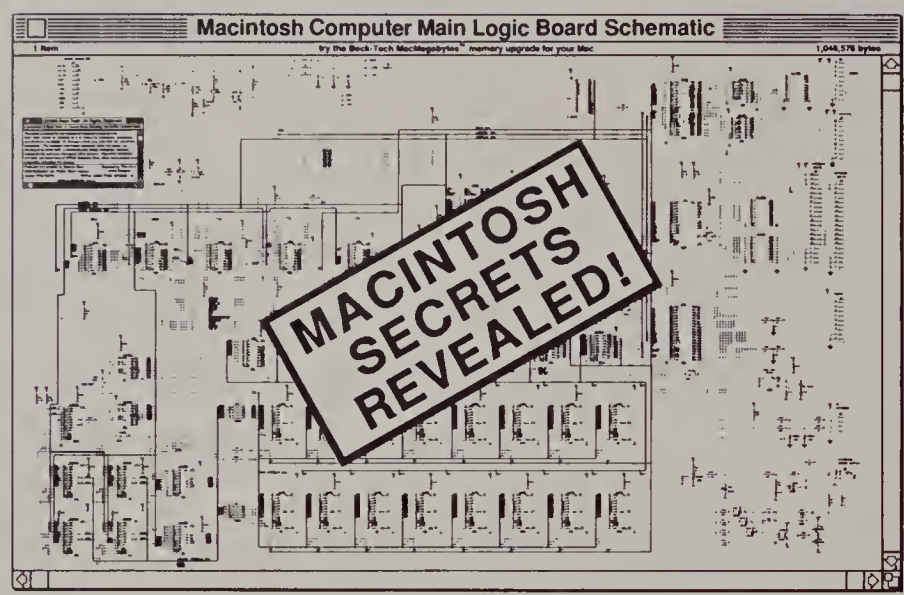

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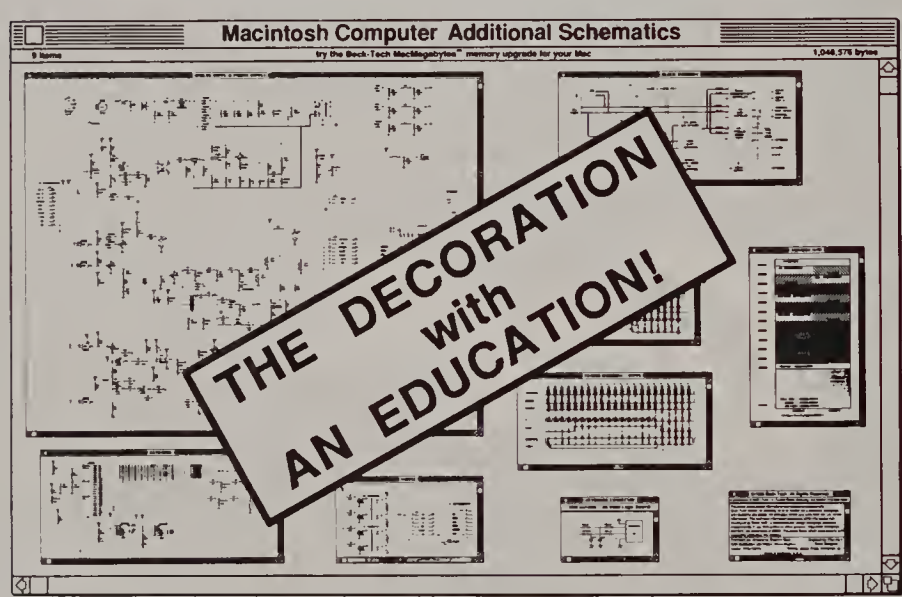

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(continued from page 168)

cable that lets me print Model 100 files on the Imagewriter (see "Model 100-to-Imagewriter Cable"). Before printing, start the Model 100's Telcom program and change the communications parameters to 9600 bps, 8-bit word length, no parity, 1 stop bit, and Xon/Xoff handshaking disabled (88N1E PP). The print quality can't match the Mac's, but the Imagewriter prints clearly and quickly.

Gordon Haig
Oakland, California

*In case you missed the solution to the Model 100/*MacTerminal *line-feed problem, here it is: Start the Model 100's BASIC by pressing the Enter key while the main menu is displayed. Next, type* **POKE 63066,255** *and press Enter. That statement alters 1 byte of the Model 100's memory, causing the Model 100 to send line-feed codes following carriage returns. The byte remains altered until you perform a "cold start" on the Model 100 or until you execute the statement* **POKE 63066,0**.

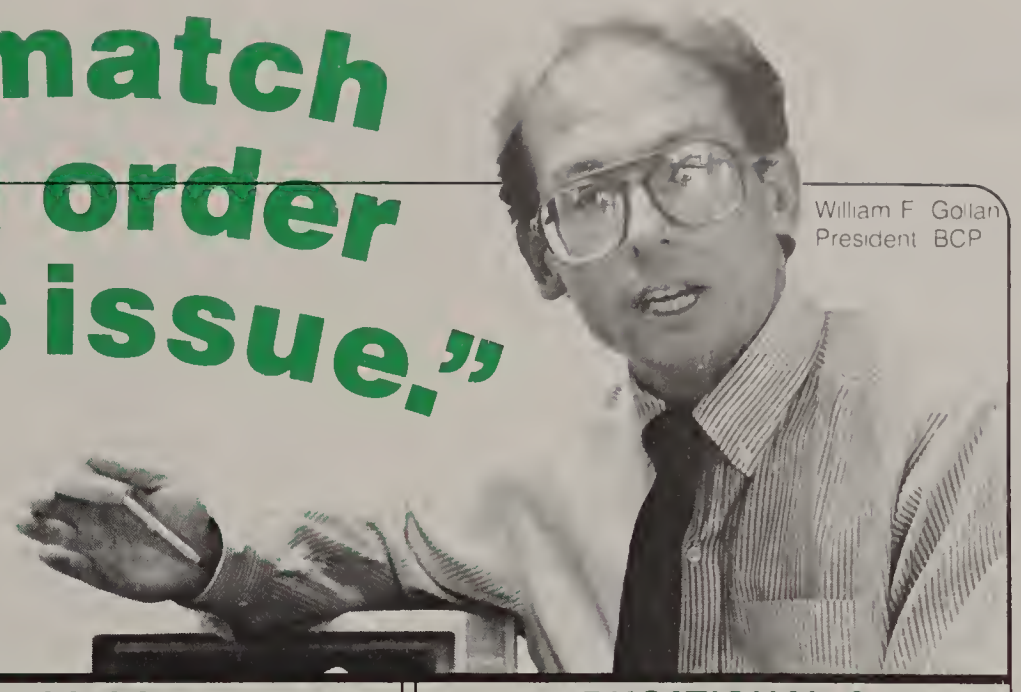
You need to make the same modification to successfully print Model 100

(continues on page 172)

Imagewriter	Model 100
1	1
2	3
3	2
7	7
20	6

Model 100-to-Imagewriter Cable
Using two male DB-25 connectors and some ribbon cable, you can make a cable that connects the Radio Shack Model 100 portable computer to the Imagewriter.

"We will match any mail order price in this issue."



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```
'CONCENTRATE     BY T E. WHITE                    VERSION 2.0   7-2-85
                     620 KIRBY LANE               PERMISSION GRANTED
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'BEST RESULTS REQUIRE CAIRO 18 AND/OR CAIRO 36 FONTS IN THE SYSTEM.
'CLICK IN SQUARE TO SEE HIDDEN PICTURE,  THEN CLICK ANOTHER SQUARE,
'IF THE TWO PICTURES MATCH THEY REMAIN; IF NOT, THEY VANISH.
'KEEP CLICKING UNTIL ALL PICTURES ARE VISIBLE
'YOUR TIME WILL BE DISPLAYED.

GOSUB INITIALIZE
GOSUB CALCULATE.GRID
GOSUB PRINT.GRID
GOSUB DEAL.IMAGE
GOSUB MAKE.MENUS
ON MENU GOSUB MENU.CHECK
ON MOUSE GOSUB GET.PICK

LOOP:
   MOUSE ON
   MENU ON
GOTO LOOP

INITIALIZE:
   LI=1
   RANDOMIZE(TIMER/4)
   DEFINT A-Z
   IF PEEK(4194313*)=255 THEN LI=1    'CHECK IF LISA OR MACINTOSH
   DIM E(520+LI*320)
   SIZE = 4
   LX=1
RETURN

MAKE.MENUS:
   IF SIZE=4 THEN A=2:B=1:C=1
   IF SIZE=6 THEN A=1:B=2:C=1
   IF SIZE=8 THEN A=1:B=1:C=2
   MENU 6,0,1,"Concentrate"
   MENU 6,1,1,"New game
   MENU 6,2,A,"4 x 4 grid"
   MENU 6,3,B,"6 x 6 grid"
   MENU 6,4,C,"B x 8 grid"
   MENU 6,5,1,"Quit"
   CALL TEXTFONT(11)
   CALL TEXTSIZE( B/SIZE*1B)
   START!=TIMER
RETURN

DEAL.IMAGE:
   DEAL=(33+96*RND)
   D=0:
PUT.NUMBER:
   X=1+(SIZE-1)*RND
   Y=1+(SIZE-1)*RND
   IF IMAGE(X,Y)=0 THEN IMAGE(X,Y)=DEAL:GOTO CHECK
   FOR X =LX TO SIZE:FOR Y = 1 TO SIZE
   IF IMAGE(X,Y)=0 THEN IMAGE(X,Y)=DEAL:LX=X:GOTO CHECK
   NEXT Y,X
   RETURN
CHECK:
   D=D+1
   IF D=1 THEN GOTO PUT.NUMBER ELSE GOTO DEAL.IMAGE

CALCULATE.GRID:
   LSX=(496+LI*12B)/SIZE: LSY=(248+LI*32)/SIZE          ' LS=GRID LINE SPACING
   XM=LI*32+4
   YM=0                                        'M= GRID MARGIN
   FOR L=0 TO SIZE+1:
   X(L)=XM+(L-1)*LSX
   Y(L)=YM+L*LSY
   NEXT L
RETURN

SHOW.PICK:
   CALL MOVETO((PICK.X-1)*LSX+XM+LSX/4,PICK.Y*LSY+YM-LSY/6)
   PRINT CHR$(IMAGE(PICK.X,PICK.Y)),
   LINE(XM+PICK.X*LSX,YM)-(XM+PICK.X*LSX,YM+LSY*SIZE)
RETURN

PRINT.GRID:
   FOR L=1 TO SIZE+1:
   LINE(X(L),Y(0))-(X(L),Y(SIZE))
   LINE(X(1),Y(L-1))-(X(SIZE+1),Y(L-1))
   NEXT L
   PICK=0
RETURN

GET.PICK:
   MOUSE OFF:MENU OFF
   M0=MOUSE(0):MX=MOUSE(1):MY=MOUSE(2)
   PICK.X=INT((MX-XM)/LSX)+1
   PICK.Y=INT((MY-YM)/LSY)+1
   IF PICK.X=FIRST.X AND PICK.Y= FIRST.Y THEN RETURN
   IF IMAGE(PICK.X,PICK.Y)=0 THEN RETURN
   GOSUB SHOW.PICK
   IF PICK=1 GOTO SECONDPICK:
   PICK=1
   FIRST.X=PICK.X:FIRST.Y=PICK.Y
RETURN

SECONDPICK:
   PICK=0
   IF IMAGE(FIRST.X,FIRST.Y)<>IMAGE(PICK.X,PICK.Y) GOTO ERASE.UM
   IF FIRST.X=PICK.X AND FIRST.Y=PICK.Y THEN PICK=1
   IMAGE(FIRST.X,FIRST.Y)=0
   IMAGE(PICK.X,PICK.Y)=0
   FOR X=1 TO SIZE
   FOR Y=1 TO SIZE
   IF IMAGE(X,Y)<>0 THEN RETURN
   NEXT Y,X
   FINISH!=TIMER
   CALL TEXTFONT(1)
   CALL TEXTSIZE(12)
   CALL MOVETO (1B0+90*L1,265+32*LI)
   PRINT "YOU TOOK ";FINISH!-START!;"SECONDS"
RETURN

ERASE.UM:
   GET(XM+(FIRST.X-1)*LSX+1,YM+(FIRST.Y-1)*LSY+1)-(XM+FIRST.X*LSX-1,YM+FIRST.Y*LSY-1),E
   PUT(XM+(FIRST.X-1)*LSX+1,YM+(FIRST.Y-1)*LSY+1)-(XM+FIRST.X*LSX-1,YM+FIRST.Y*LSY-1),E
   GET(XM+(PICK.X-1)*LSX+1,YM+(PICK.Y-1)*LSY+1)-(XM+PICK.X*LSX-1,YM+PICK.Y*LSY-1),E
   PUT(XM+(PICK.X-1)*LSX+1,YM+(PICK.Y-1)*LSY+1)-(XM+PICK.X*LSX-1,YM+PICK.Y*LSY-1),E
   PICK.X=0 :PICK.Y=0:FIRST.X=0: FIRST.Y=0
RETURN

MENU.CHECK:
   MOUSE OFF:MENU OFF
   M0=MENU(0):M1=MENU(1)
   IF M1=2 THEN SIZE=4:A=2:B=1:C=1
   IF M1=3 THEN SIZE=6:A=1:B=2:C=1
   IF M1=4 THEN SIZE=B:A=1:B=1:C=2
   IF M1=5 THEN END
   CALL TEXTSIZE( B/SIZE*1B)
   FOR X=1 TO SIZE:FOR Y= 1 TO SIZE    'ERASE OLD DEAL
   IMAGE(X,Y)=0:NEXT Y,X
   LX=1
   GOSUB CALCULATE.GRID
   CLS
   GOSUB PRINT.GRID
   GOSUB DEAL.IMAGE
   GOSUB MAKE.MENUS
RETURN

END
```

Concentrate Listing

This MBASIC program lets you test your concentration skills. The object of the game is to match all the sets of pictures in the shortest time.

(continued from page 170)

files on the Imagewriter. If you don't, the same problem will occur: the Imagewriter's carriage will return to the left margin without advancing one line. You can close switch 8 of the Imagewriter's DIP switch SW1 as an alternative to the POKE statement; however, doing so requires that you open the switch to print from the Mac. See page 47 of the Imagewriter manual for information on linefeed settings.–Ed.

Concentrate in BASIC

I've written an MBASIC 2.0 game that lets you test your concentration skills (see "Concentrate Listing"). The game works best if your System file contains the Cairo font. After carefully typing the game's listing, save it. Then choose Run from MBASIC's Program menu. A grid appears on the screen. Click in any square and you see a picture. You see a letter or other character if your System file lacks Cairo. Next, click in another square. If the two pictures match, they both remain on the screen. If they don't match, they both disappear. The object of the game is to keep clicking until all pictures are visible, at which point the elapsed time is displayed. For a real challenge use the 6 x 6 or 8 x 8 command in the Concentrate menu.

Thomas E. White
Richardson, Texas

Rambo's Type

I've discovered that most of the graphic images in Miles Computing's *MacAttack* arcade game come from four fonts–Tank, Missile, MATitle, and Landscape–that are

(continues on page 174)

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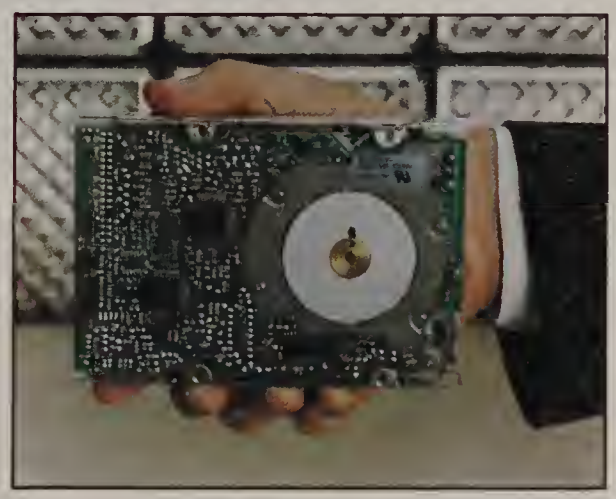

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(continued from page 172)

part of the *MacAttack* system disk (see "Fighting Fonts"). You can use Apple's Font/DA Mover to copy the fonts to other disks for use with other applications.

The Landscape font contains the scenery from the game. Characters 0 through 9, for example, give you the city pictured in the game, while A through Z display mountains. The Tank font contains the tanks, the planes, and the missiles used in the game. The Missile font is a stencil-like typeface, while MATitle contains the game's control-panel images.

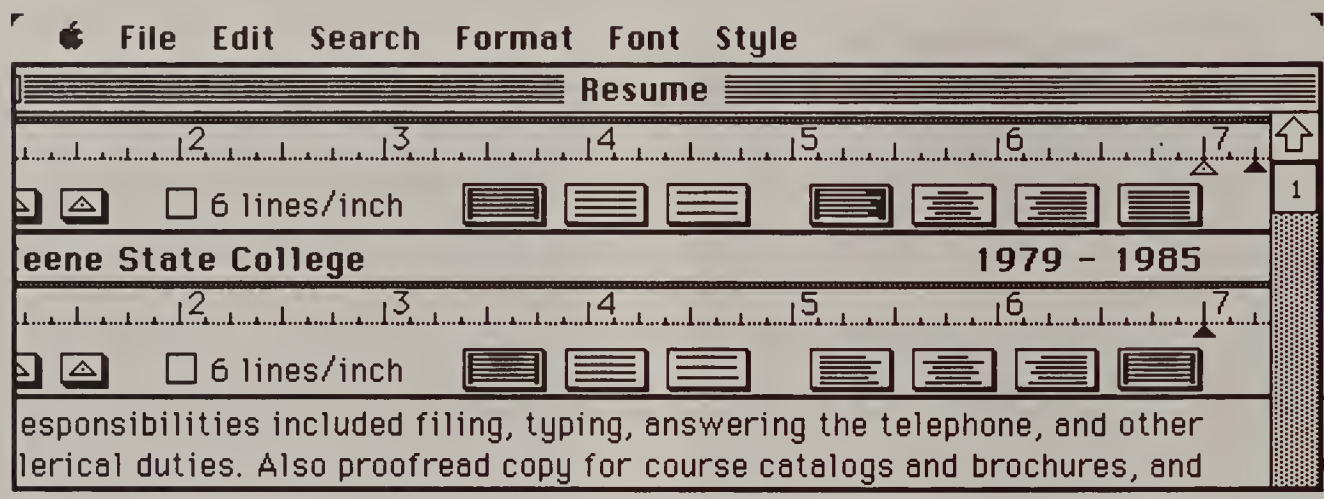
Brian Kalt
Southfield, Michigan

Aligning with Decimal Tabs

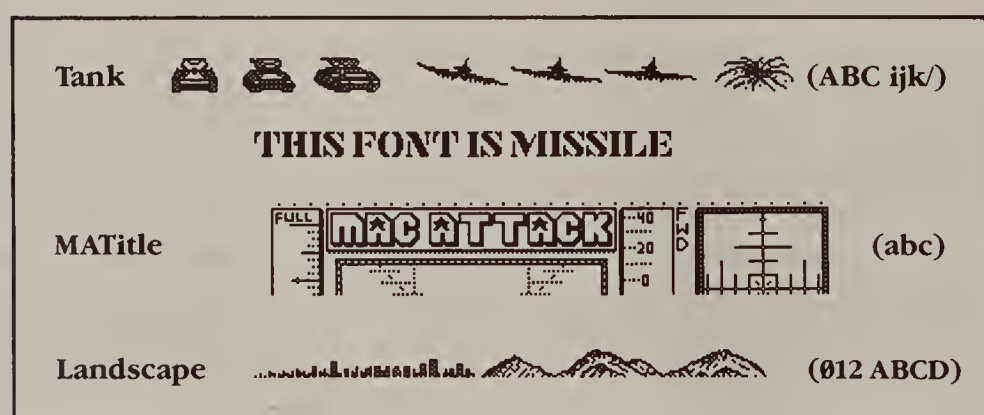
In a resume I recently put together, I wanted each job title to appear at the far-left side of a line and information about years worked at the far right. The rest of the text was justified, and I wanted the years to line up with the paragraphs' right margins. I first used *MacWrite*'s Option-Space trick to create a "hard" space (see "Hard MacWrite Spaces," *Open Window, Macworld,* May 1985). That worked until I changed fonts or sizes. The spacing was ruined and put me back to square one.

Then I found I could use the decimal tab to do the aligning. Even with a dash separating two separate years, a decimal tab located at the far-right margin aligns the year information properly. With *MacWrite* there's just one problem: you cannot put a decimal tab exactly at the right margin, presumably to allow room for the decimal point. So I made a "template" containing two rulers. The first has a right margin of 7¼ inches and a decimal tab at the 7-inch mark (see "Decimal Tab Alignment"). That ruler is followed by a dummy line, which I later replace with actual text, and another ruler with the right margin at 7 inches. I then copy the template to the Clipboard and paste it wherever I need it. The decimal tab keeps things aligned even after changing fonts.

Paul J. Cohen
Beverly, Massachusetts

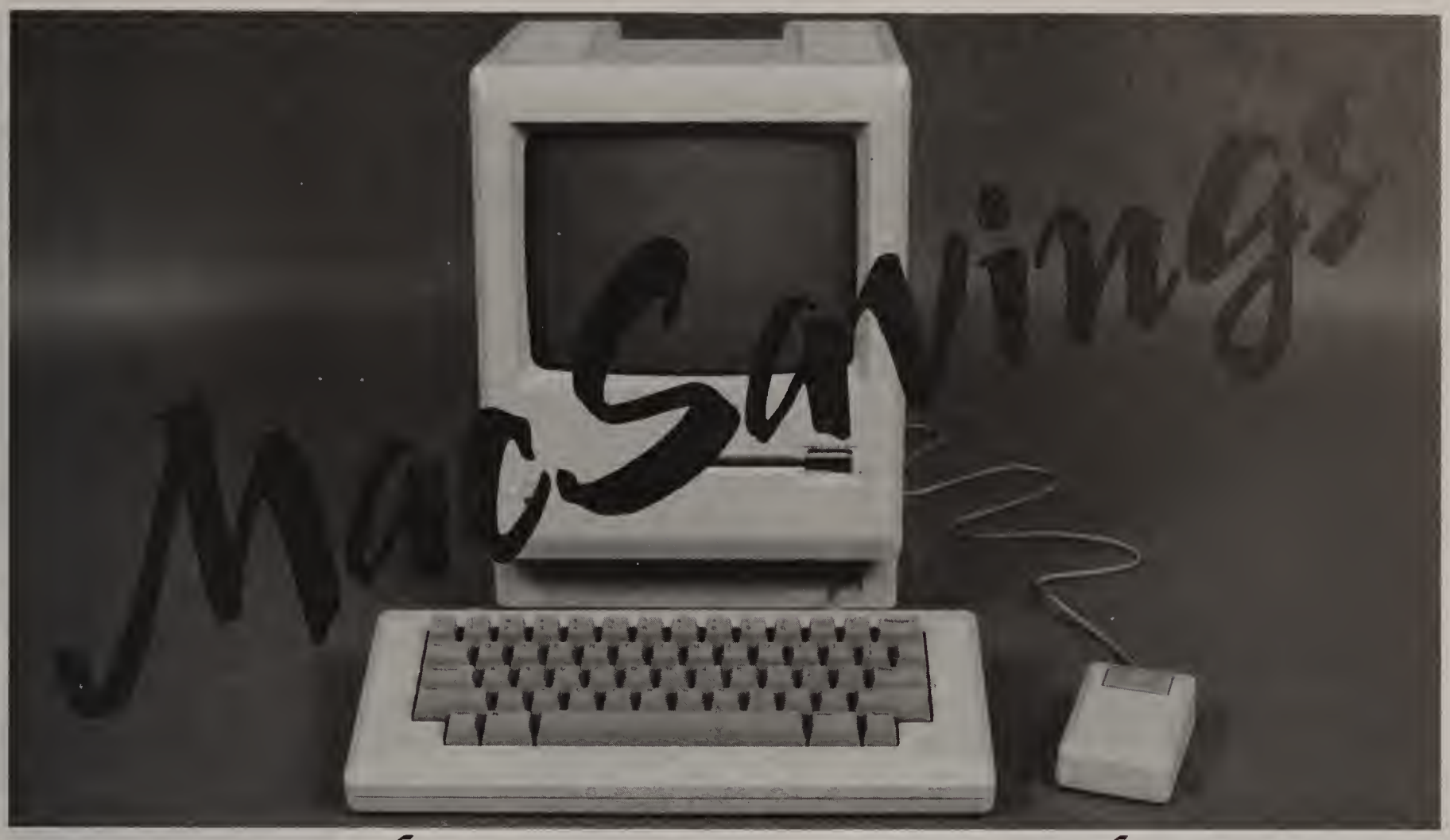


Decimal Tab Alignment
To align numbers with the right margin in MacWrite, *use a decimal tab. Widen the window and make a template with one ruler that has the right margin at 7¼ inches and a decimal tab at the 7-inch mark.*



Fighting Fonts
The graphic images in Miles Computing's MacAttack *are from four fonts that you can copy, using the Font/DA Mover, for use with other applications. Here, samples of the four fonts are shown along with the keys that created them.*

Perhaps you've come up with a nifty routine, gained some insight into how the Mac or an application program works, or even written a short program that performs a useful function or creates an interesting diversion. Tell us about it, and we'll pass your discovery along. We'll also pay $25 to $100 for each Open Window *item published. Please send your Macintosh discoveries on disk—which we will return—along with a brief hard-copy description to* Open Window, Macworld, *555 De Haro St., San Francisco, CA 94107, or electronically to CompuServe 70370,702 or The Source BCW440. All published submissions become the property of* Macworld. □



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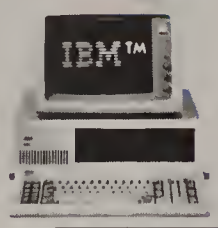

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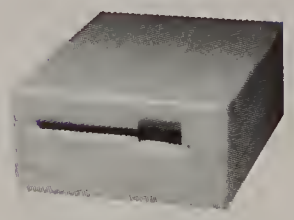

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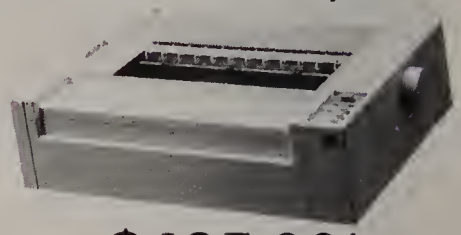

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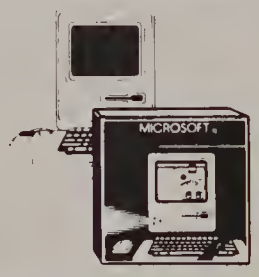

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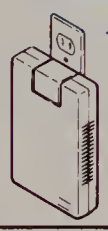

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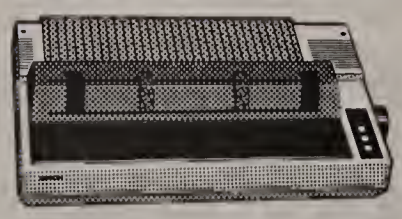

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†8 OPTIONAL BUSINESS RENTAL LIBRARY—All members can join our BUSINESS RENTAL LIBRARY ***featuring over 1000 available titles*** for just $25 PER YEAR above the base membership fee. **This entitles you to rent business software AT JUST 20% of the DISCOUNT PRICE FOR A 14 DAY PERIOD. If you decide to keep the software, the entire rental fee is deducted from the purchase price. VIP MEMBERS GET A FULL 30 DAYS for just $30 above the V.I.P. base fee. This also includes the game library privileges for a $5 combination savings.**

†9 OPTIONAL GAME SOFTWARE RENTAL LIBRARY—The Game Rental library is available to members for just $10 PER YEAR and permits evaluation (or just enjoyment) of any game or educational software product as above.

10 SPECIAL SAVINGS BULLETINS—THE PRINTOUT—Issued Quarterly at no charge to Network members only! The Printout contains all the New Product listings and price changes you need to keep your Catalog up to date. Also, we buy excess dealer inventories, and store bankruptcy closeouts, which we turn around and make available to our members at fantastic savings via *THE PRINTOUT.*

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15 PRICE PROTECTION—The PC Industry is crazy!! Prices change not yearly or monthly or even weekly but often day by day! These changes are sometimes up *but are mostly down!!!* **THE NETWORK GUARANTEES THAT IN THE EVENT OF A PRODUCT PRICE REDUCTION, BETWEEN THE TIME YOU PLACE YOUR ORDER AND THE TIME THE PRODUCT SHIPS YOU WILL ONLY PAY THE LOWER AMOUNT!!**

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■ *Accessories*

○ *Cables*

AppleTalk Cable
Apple-approved Network Cable in stock for your bulk requirements. Available in FEP Teflon or PVC. Also in stock, Apple-approved Assembly Plugs and Extenders. Please call or write:
H-B Associates, P.O. Box 857, Union City, CA 94587, 800/423-3014 (Natl.), 800/423-4224 (CA)

Mac Products
MacLock secures Mac, keyboard, mouse, 2nd drive, modem, & printer. Attractive red vinyl-covered steel ⅛" cables. Lock incl. $40. Any length MacCables custom connect any modem, printer to your Mac. Most $29. *TaxMaster* prepares U.S. taxes w/ *Multiplan*. P1, 2, SchA-E, W, SE, 2106. $99. MacPlot $130. $5 s/h. CA tax 6.5%.
Mac Products, 20231 San Gabriel Valley Dr., Walnut, CA 91789, 714/595-4838

○ *Index*

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Now you can find any article, column, or product review that runs in *Macworld*. A complete quarterly index ends searching thru back issues for the info you need on Mac products, applications, software. Our index covers every *Macworld* ever published. Makes *Macworld* a Mac Library. Only $3.95/ea., $12.95/yr.
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Adex Inc., P.O. Box 74142, Metairie, LA 70033, 504/288-5472

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Windsock Corp., P.O. Box 93, Mulvane, KS 67110

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Complete with one cable $99
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Visa/MC welcome. See display ad in this issue.
Creighton Development, Inc., 714/472-0488

■ *Business Opportunities*

Looking for a Publisher
for your Mac application? CSI, the publisher of many microcomputer software products would like to talk with you about publishing your innovative product ideas. Complete publishing services–documentation thru distribution. In-depth technical knowledge of the Mac. Flexible royalty %'s.
Creative Solutions, Inc., 4701 Randolph Rd. #12, Rockville, MD 20852, 301/984-0262

■ *Colleges*

Colorado Mtn. College
Alpine Campus in Steamboat Springs uses Mac Office. AppleTalk-connected Macintosh 512Ks, hard disk file server, LaserWriter, etc., and BEC MS-DOS micros and super minicomputer support. Accredited programs in Information Processing Technology, Computerized Accounting, and Liberal Arts. Contact:
Colorado Mountain College, Alpine Campus, Admissions Office, Dept. MC, P.O. Box 775288, Steamboat Springs, CO 80477, 303/879-3288

■ Expert Systems

MacKIT™–512K Mac Req.

The Knowledge Integration Toolkit for building Expert Systems. Since 7/85, MacKIT™ users across the U.S. and Europe to Nairobi, Kenya, are developing their skills in Knowledge Engineering and exploring new technologies in building Expert Systems. Be part of the next computer revolution. $149 MC/Visa.
Knowledge System Environments Inc., P.O. Box 261, Dept. M2, Grantham, PA 17027, 717/766-4496

■ Hardware

○ Interfaces

Granny Smith Connection

A parallel printer interface for your Macintosh that gives you the freedom to use parallel printers & plotters. Comes with integral cable & software for dot matrix, daisy wheel, ink jet, laser, & more. (Epson, IBM, HP, etc.) Also available for Apple IIe and IIc. Apple Certified Developer.
ZAP Logic Corporation, 290 Larkin St., Buffalo, NY 14210 208-5647 Yonge St., Toronto, M2M 4E9, Canada, 416/225-8815.

○ Memory Upgrades

Memory Enhancements

Upgrade your Mac to 512K, 1024K, or 2048K of contiguous memory. Local 20-minute installation available. All enhancements under warranty for 120 days with one-year warranty available. Please call for nearest distributor and current pricing. Distributorship inquiries welcome.
Ehman Engineering, 2721 La Gran Via, Carlsbad, CA 92008, 800/257-1666

$39 512K Upgrade Kit

Patent Pending method–no desoldering necessary!! 100% 512K Mac compatible. Basic kit includes assembled PC board, connector, & instructions $39. With memory $99. For factory-assembled & tested, one-year warranty $199. Satisfaction guaranteed or your money back. Immediate delivery. Visa/MC/MO. Add $5 s/h.
Innoventions, Inc., 1669 S. Voss #880, Houston, TX 77057, 713/728-0938

○ Monitors

MacMonitor $1295

23-inch hi-res monochrome monitor with antiglare makes viewing your Mac easy in classrooms, trade shows, seminars, offices. Horizontal scan rate is switch selectable: 15-25 kHz. Guess what else? MacMonitor works with Apple IIe, IBM PC, Amiga, etc. MacMonitor does it all. Ask about our Mac Projectors for $3995.
National Data Systems, 2419 Rutland Dr., Austin, TX 78758, 512/837-1760, 800/531-5143 (U.S.), 800/252-8286 (TX)

○ Terminal Emulators

IBM Emulator/File Transfer

VUWTerm allows Macintosh to communicate with IBM via the Yale IUP/Series 1 protocol converter. File transfer and 3370 emulation are supported as for YTerm on the IBM PC. Similar links to VAX/VMS provided. Individual and site licenses.
Computing Services, Victoria University, Private Bag, Wellington, New Zealand

○ Video Adaptors

The Mentauris CVA

Provides any Mac with a high-quality video output port. Ideal for all large-screen viewing applications. Easily installs internally, no soldering, splicing, or mounting hardware required. Housing disassembly tools also available. Call for competitive pricing, product brochures, and technical assistance.
Mentauris Technologies, P.O. Box 1467, San Marcos, TX 78667-1467, 512/396-1565

■ Insurance

Safeware

If your computer is important to you, insure it! SAFEWARE provides full replacement of hardware, media, & purchased software. As little as $39 a year covers fire, theft, power surges, earthquake, water damage, auto accident. Call 8 a.m. to 8 p.m. Mon. thru Fri.; Sat. 9 a.m. to 5 p.m.
Safeware, The Insurance Agency Inc., 2929 N. High St., P.O. Box 02211, Columbus, OH 43202, 800/848-3469 (Natl), 614/262-0559 (OH)

■ Publications

Macintosh Typefaces

A Reference Guide to Shapes, Sizes and Styles. Written for the non-technical user, it includes over 100 pages of complete font listings and many useful appendices. A must for anyone who needs to present text professionally. Send $14.95 plus $2.50 postage & handling. In CA add $.90 sales tax.
Houlberg Development, P.O. Box 271075, Escondido, CA 92027

Accessories & Supplies

A catalog of Mac products for Mac users containing 100s of super-valued items for the everyday use of the Macintosh. Books to help explore the unlimited potential of you and the machine. Supplies to store and show off your creativity. Accessories to keep it all organized. Aids to tap the graphic powers. Call or write for free catalog.
Desktop Supplies, Ltd., P.O. Box 441, Lake Geneva, WI 53147, 414/248-2422

Microcomputer Books

Computer books for the mail-order market: *Macintosh Multiplan* ($15.95), *Basic Microsoft BASIC for the Macintosh* ($16.95), *Macintosh Notebook: Lotus Jazz* ($14.95), *Macintosh Notebook: MacPascal* ($14.95) MC/Visa. Current directory $1.
Micro Books, P.O. Box 60203, Grand Junction, CO 81506, 800/874-5280 (Natl.), 800/874-3426 (CO)

Mac Fun/Profit Projects

Big 353-pg. book bursting w/ ideas. Easy illustrated steps guide you to produce newsletters, books, animation, slide shows, digitized photos, music, & others. Crammed w/ tips & shortcuts. Only $24.95 now, postpaid. After Dec. 31 add $2.50 post/handling. CA res. $1.50 tax. Visa/MC/chk/MO. Dealers welcome.
Calectron Systems Publications, 1165 N. Normandie #2, Los Angeles, CA 90029, 213/668-0711

■ Services

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MacPublishingNet

EXQUISITE LASERWRITER PRINTING for MAC text, graphics and IBM PC *Word*. (MAC by modem or disk; IBM by modem only.) ALSO, our professional artists do MAC-aided DESIGN, TYPESETTING, and LAYOUT for brochures, newsletters, advertising, stationery, etc. Fast service. Write or call for more information.
Center Associates, P.O. Box 2291, Southfield, MI 48037, 313/569-7171, 313/352-7777

○ Typesetting

MacTypeNet

Professional typesetting services for the Macintosh. Text and/or graphics output at 300 to 2450 lines per inch resolution from Apple LaserWriter™ or Allied Linotype™ L300 laser typesetter. Disk and modem service. 24-hour turnaround. Full printing and bindery services. Write or call for user info.
Lasergraphics, P.O. Box 5218, Livonia, MI 48152-0188, 313/477-2733

■ Software

○ Accounting

Shopkeeper

For retailers and service firms, Integrated Accounts Receivable, Billing, Inventory, Point of Sale, & Invoicing program. Use all or any parts. (880 customers, no limit inventory.) Written just for the Macintosh. Works with any general ledger system. For the 512K Macintosh with external or hard disk drive. Introductory offer $149.95.
Woodtec, 320 W. Maple, P.O. Box 445, Arkansas City, KS 67005, 316/441-0187

The Best General Ledger 1.0

Standard general ledger features and extensive use of the Macintosh user interface combine to make this a powerful financial tool. The low price makes it the best general ledger program for the MAC. $49

(MA res. add $2.45 sales tax).
Thomas A. Lawler, CPA, 59 Alden Rd., Weymouth, MA 02188, 617/335-2129

○ *Architecture*

MacPerspective™
Allows architects, draftspeople, and artists to rapidly construct perspective drawings of houses, buildings, or other objects. Viewpoint can easily be changed. Drawings can be printed in any size up to 100 inches. Easy to learn and use. Fast, professional program with many features, thorough manual. $189.
B. Knick Drafting, 313 Marlin Pl., Melbourne Beach, FL 32951, 305/727-8071

○ *Backup Restore*

COPY II MAC
COPY II MAC backs up nearly all protected software easily! Allows running some direct from your hard disk–so put that original 3½" safely away! Repairs damaged disks and undeleted files, too! For 128-512K Mac, 1-2 drives. $39.95 + $3 s/h ($8 overseas). Visa/MC/chk/c.o.d. (We also have backup programs for IBM, Apple, Comm 64!)
Central Point Software, Inc., 9700 S.W. Capitol Hwy. #100, Portland, OR 97219, 503/244-5782

○ *Backup Upload*

Hard Disk Utility
Allows any Mac owner to BACK UP protected software & UPLOAD most software pkgs. to HARD/RAM disks. No more "Insert Master Disk" messages w/ copies made w/ our software, so you need not shuffle floppies! Works on all the latest pkgs. Comprehensive documentation makes it easy to use; technical info. makes it a must for the hard-core hacker. Only $79.95 + $5.20 (CA) + $3 s/h.
FWB Software, 2040 Polk St. #215, San Francisco, CA 94109, 415/474-8055

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Structural design templates for wood-frame projects (req. *Multiplan*). Save hours of analysis, calculation, and design time on each job. Easy to Use–Well Documented–Money-Back Guarantee!
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Sheehan and Associates, 3509 Ocean Dr., Hollywood Beach, Oxnard, CA 93030, 805/985-5318

○ *Business*

ZipFinder
Analyzes your mailing list files created with virtually any database program and automatically inserts the correct zip codes into the zip code fields. Also verifies existing zip codes on file and finds zips according to addresses entered by operator. Sold by state or partial state.
SoftIdea, 8177 S. Harvard #619, Tulsa, OK 74137, 918/745-9792.

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Softouch Software, Inc., P.O. Box 1744, Lake Oswego, OR 97034, 503/638-1400

Time Management 1.0
This easy-to-use program stores employee time data & prints various useful reports. Suitable for service companies, professional offices, and job order costing. Requires *Microsoft* BASIC. Stored in unprotected format to provide for customization. $29 (MA res. add $1.45 sales tax).
Thomas Lawler, C.P.A., 59 Alden Rd., Weymouth, MA 02188, 617/335-2129

Macintosh Budget Aids
Tools to assist in the management of personnel, facility, and cost budgets. Requires *Multiplan*. *Chart* optional.
- Facility budget
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- Linked budget vs. actual
- Linked graphs
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$59 + $3 s/h (Visa/MC/chk.). VA res. add 4% tax.
Synectics Corporation, Commercial Operations, 10400 Eaton Pl. #200, Fairfax, VA 22030, 703/385-0190

○ *Business Forms*

The MacForms™ Series
- *MacForms*–a 4-disk set w/over 100 *MacPaint* business forms. Virtually every business form you'll ever need $79.95.
- *DrawForms*–business forms designed for use w/*MacDraw*. Features click-tab data entry & reduced layout to minimize scrolling. $59.
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Datafood Software Co., 400 Country Dr., Ste. H, Dover, DE 19901, 302/736-9098

MacForms™ & DrawForms™
Business forms on disk. Invoices, Purchase Orders, Statements, etc.
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Datafood Software Co., 400 Country Dr., Ste. H, Dover, DE 19901, 302/736-9098

○ *Communications*

MacDasher–DG Emulator
MacDasher simulates the operation of a Data General D210 terminal on a Macintosh. All D210 screen attributes are supported. *MacDasher* also offers text file trasfer, printer pass-through, log-on macros, and pull-down function key templates. Works through either serial port at all settings. $59.
Kaz Business Systems, 10 Columbus Circle #1620, New York, NY 10019, 212/757-9566

○ *Compilers*

MacLanguages Series Pascal
A complete native code Pascal compiler and development system for the Macintosh. Provides full access to all ROM routines and other Apple software like *MacinTalk* and *Three D Quickdraw*. Creates stand-alone double-clickable applications and desk accessories, and it's compatible with Apple's MDS. $99.95 + $5 s/h.
TML Systems, P.O. Box 361626, Melbourne, FL 32936, 305/242-1873

○ *Data Management*

DATAFAST
A powerful yet SUPER-EASY-to-use professional database management program. Create mailing lists, directories of customers, inventories, etc. Use predefined formats or create your own. Easy entering, sorting, and updating of data. "Copy" and "Paste" records into your *MacWrite* documents. $49. Req. 128K, 1dd.
Statsoft, 2831 E. Tenth St. #3, Tulsa, OK 74104, 918/583-4149

○ *Educational*

New Test Generation Pkg.
MicroTest II creates, updates, generates, and stores a wide variety of tests. Easy question entry, on-screen edit, prints multiple versions with separate answer keys. Writes MacWrite/MacPaint compatible files for WP and graphics. Ideal for trainers, educators. Send for free brochure.
Chariot Software Group, 3659 India St., San Diego, CA 92103, 619/298-0202

Astronomy for the Mac
ASTRONOMY plots a polestar's-eye view of the solar system and an earth-bound observer's image of the heavens for a given date, time, longitude, and latitude. ASTRONOMY plots the sun, moon, planets, comets,

and many major constellations. Written in compiled C for 512K Macintosh. Send $35 to:
E & M Software Co., 95 Richardson Rd., Chelmsford, MA 01863, 617/251-7451

○ *Engineering*

Digital Logic Design Aid
LogiMac is an interactive digital logic drawing and simulation package for the Macintosh. It is intended for use by engineers, students, teachers, and hobbyists interested is designing, documenting, and experimenting with digital logic hardware. It supports most common gates, flip-flops, etc. $79.95 (U.S.).
Capilano Computing, 554 Beatty St., Vancouver, B.C. V6B 2L3 Canada, 604/669-6343

BEAMAC II for CEs/MEs
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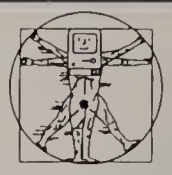

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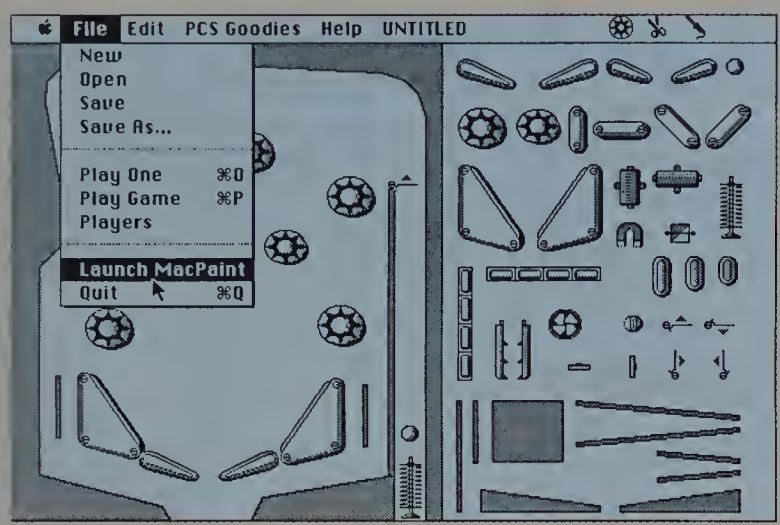

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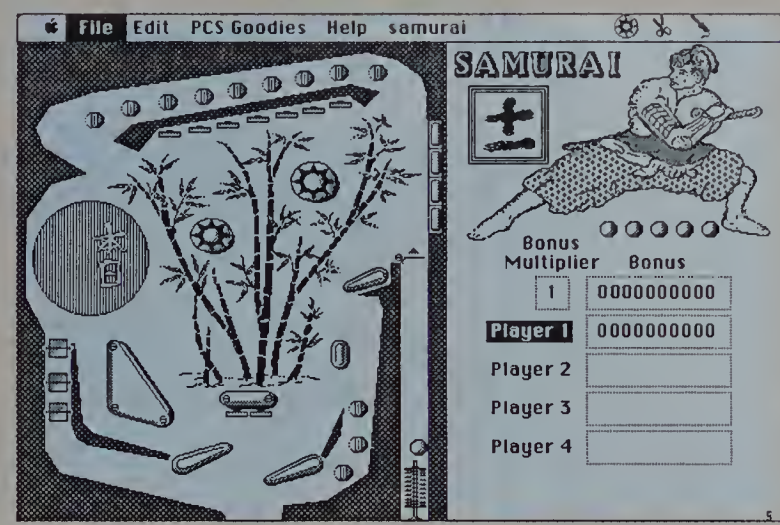

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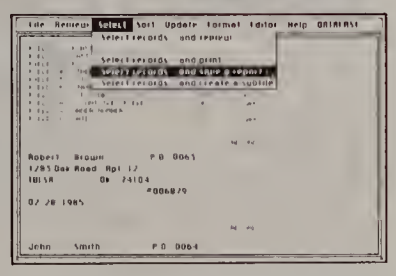

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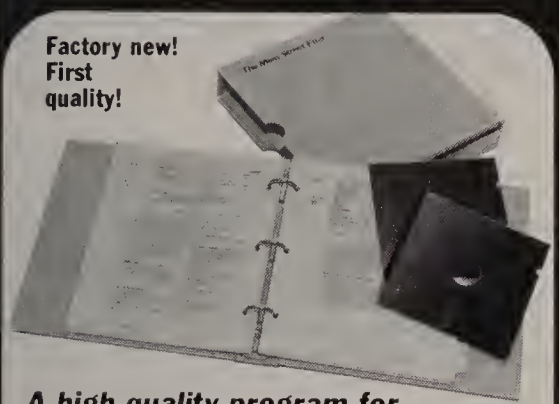

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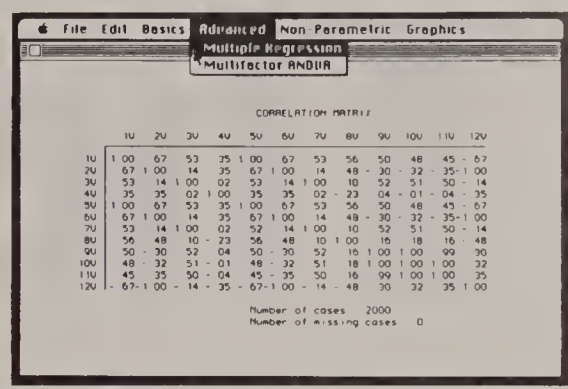

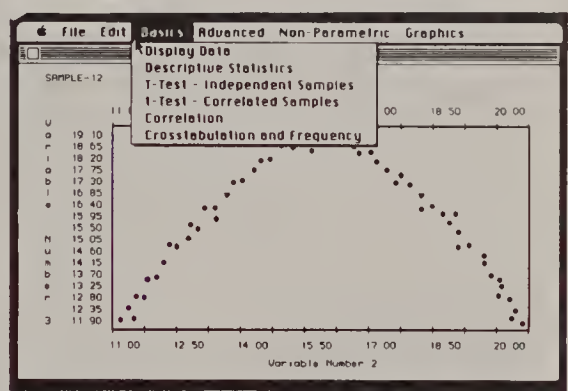

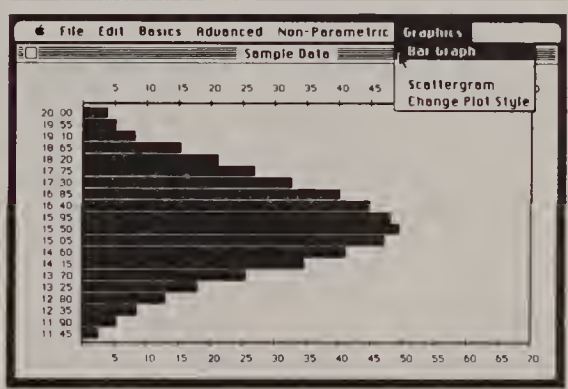

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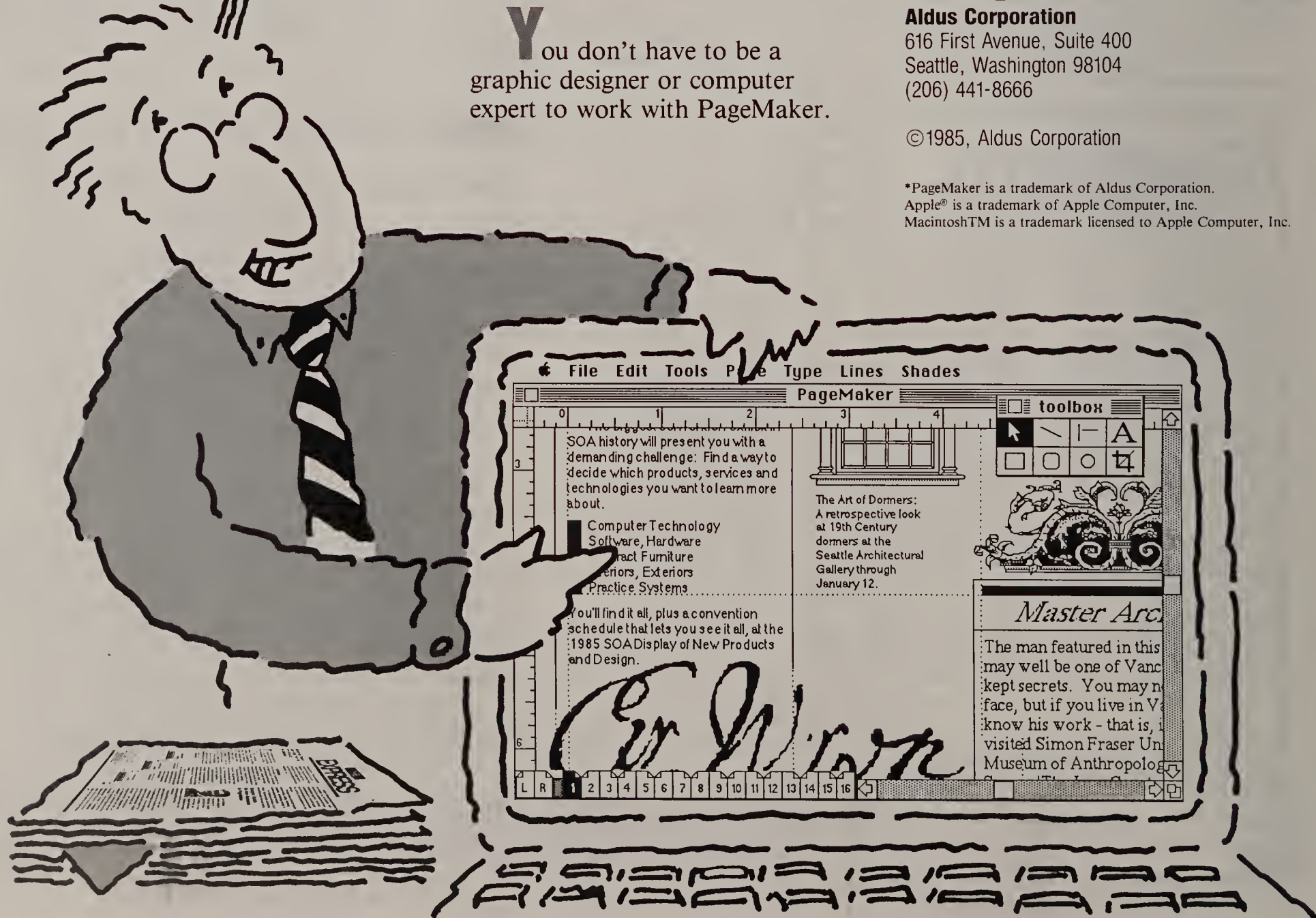

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Macworld Gallery

An exhibition of Macintosh graphics

Edited by Erfert Nielson

Each month Macworld Gallery *displays the winners of the Macworld Art Contest, as well as several other drawings. Send a paper copy of your artwork to* Macworld Gallery, *555 De Haro St., San Francisco, CA 94107. The drawings are viewed by a panel of judges. The first-place winner receives $500, and two runners-up receive $250 each. People whose drawings are exhibited in the regular* Gallery *section receive $25.*

Because of the large number of submissions, we are able to acknowledge only winning entries. Prize-winning entries become the property of Apple Computer.

■ *$500–First Prize*

Chair

This picture is one of my earliest *MacPaint* efforts. I wanted as many textures as possible, so I used the spray can to overlap several patterns. I used the pencil and a small brush to scrawl the graffiti on the wall behind the chair.

Steve Picker
Boston, Massachusetts

Chair

$250–Second Prize

Mask Drama
For me *MacPaint* is a new medium, with unique assets and limitations. This piece is a continuation of my work in painting, drawing, and collage. I enjoyed creating new patterns and blending them to describe dark and light areas.
Michelle Shelfer
San Francisco, California

Mask Drama

$250–Second Prize

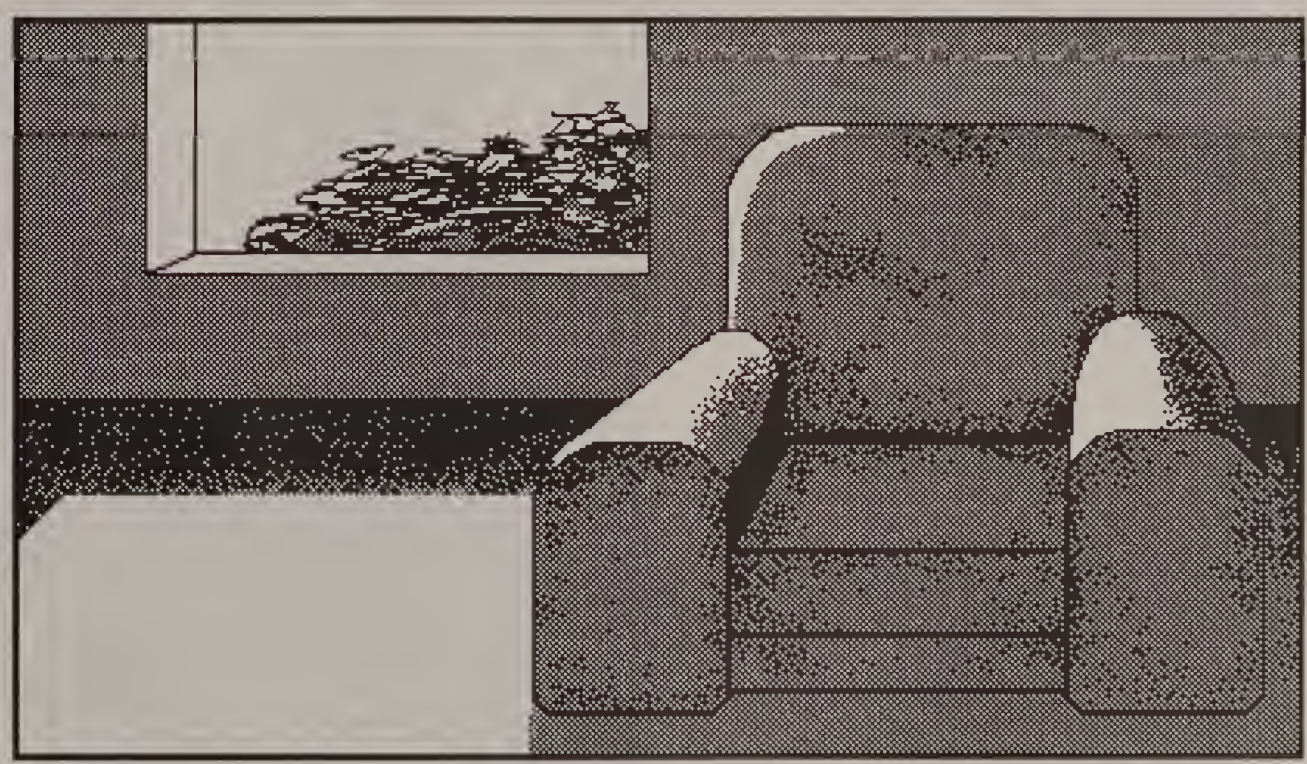
My God!
I'm an illustrator accustomed to working with an airbrush. I got a Mac about a month ago and found that *MacPaint* offers interesting techniques not found in other media. For this drawing I used the selection rectangle to copy patterned areas.
Claude Leonard
Brussels, Belgium

My God!

Scratched Eye
I drew this picture with only one tool: the pencil. I sketched the basic form and then used the pencil's eraser, which changes black pixels to white, to scratch white lines across black areas.
Alan Eyzaguirre
Hollywood, Florida

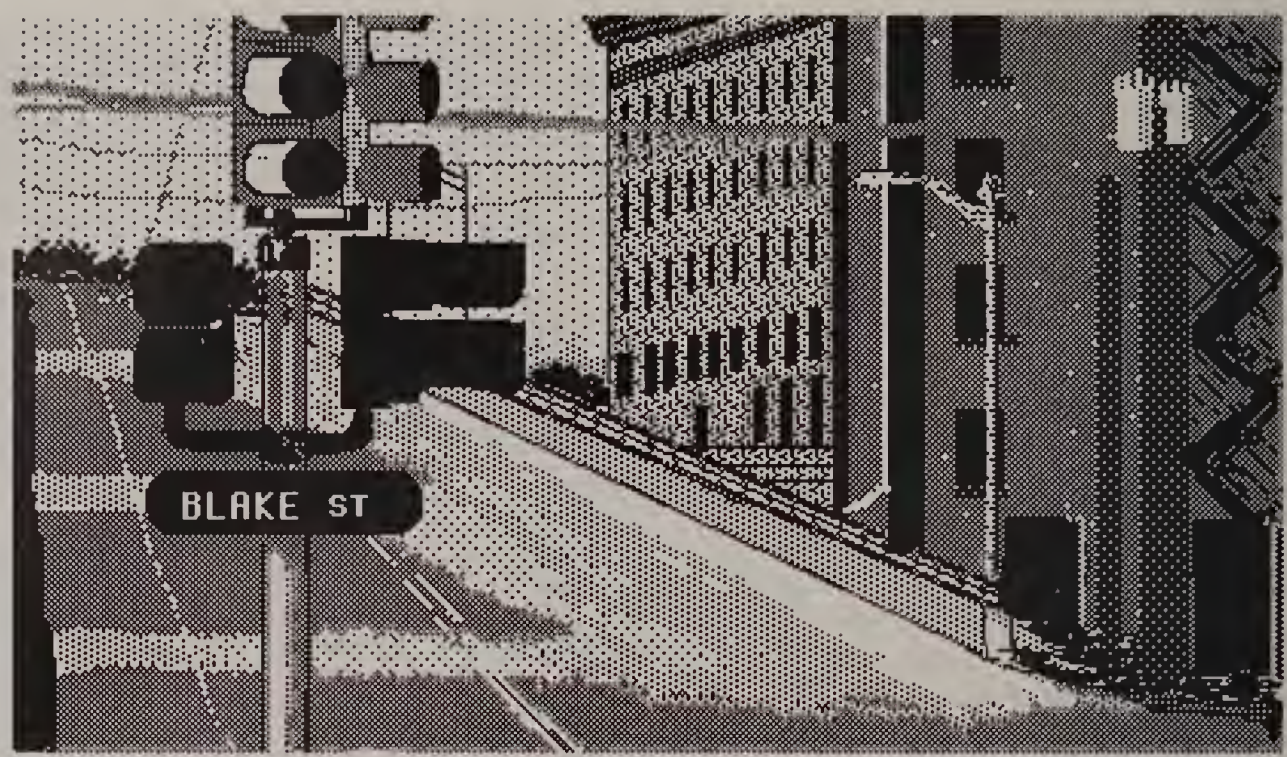
Scratched Eye

Florida Is a Long Ways
I used the rounded-corner rectangle to make the general shape of the chair, changing some edges in FatBits. Then I shaded in the chair with the paint bucket and the spray can. The only other tools I used were the straight line for the window and the pencil for the foliage.
Carolyn Hunter Thayer
Milwaukee, Wisconsin



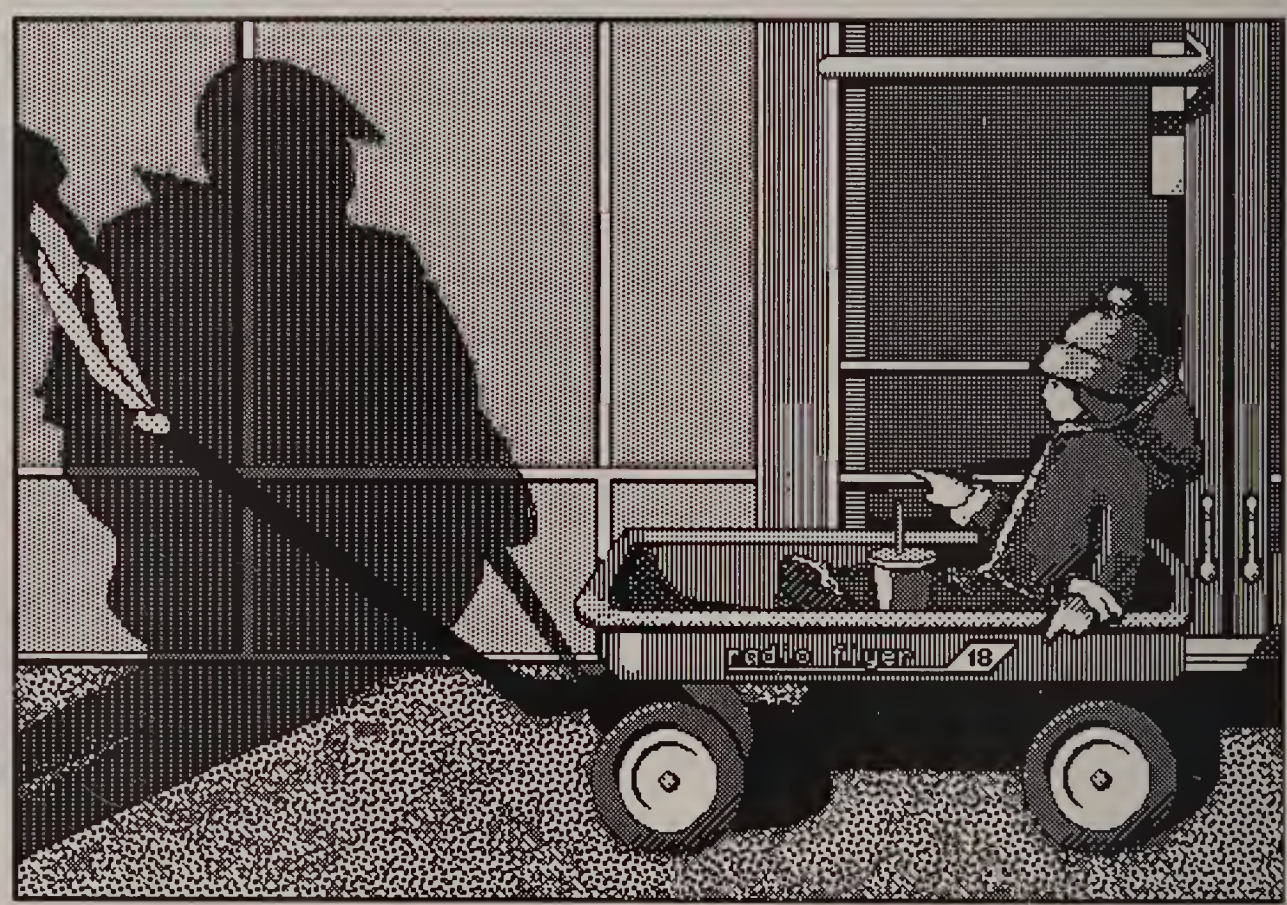
Florida Is a Long Ways

Blake Street
I blocked in the building using the paintbrush and the paint bucket. Then I used the lasso to select and duplicate the windows. Several *MacPaint* tools, including the straight line, the spray can, and the circle, helped me complete the street and the traffic light.
Ted Murphy
Denver, Colorado

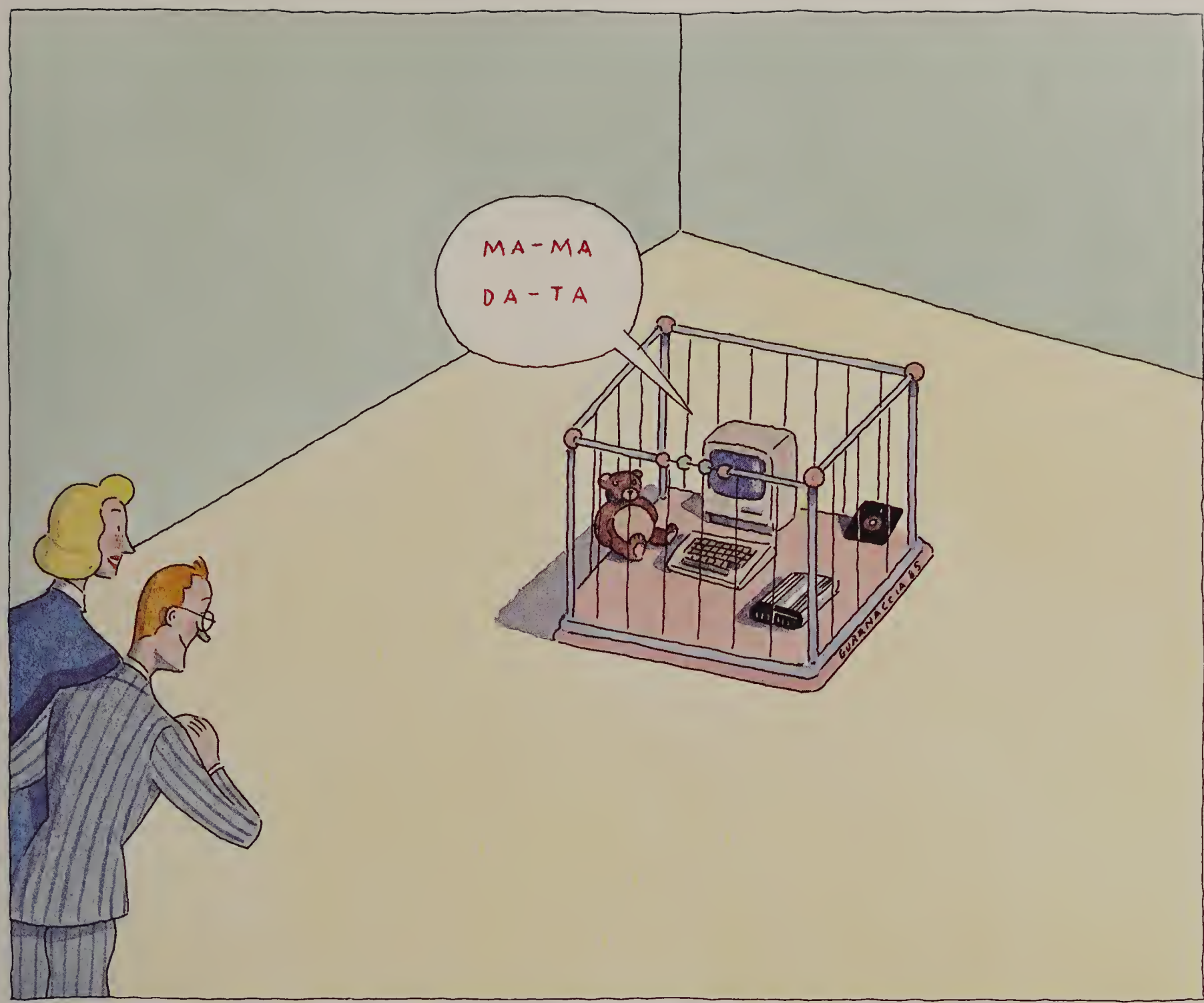


Blake Street

The Kid
This drawing is based on a photograph in which the shadow of the father creates a somewhat ominous mood. The primary tools I used were the straight line, the pencil, and the paint bucket. I was delighted with the flexibility of *MacPaint* when it came time for the details. For example, I used the Outline option from the Style menu for the lettering on the wagon, and I edited a pattern and spray-painted it over another pattern for the cement.
Molly Minnear
Washington, D.C.



The Kid



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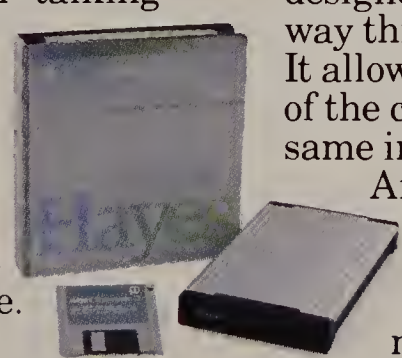

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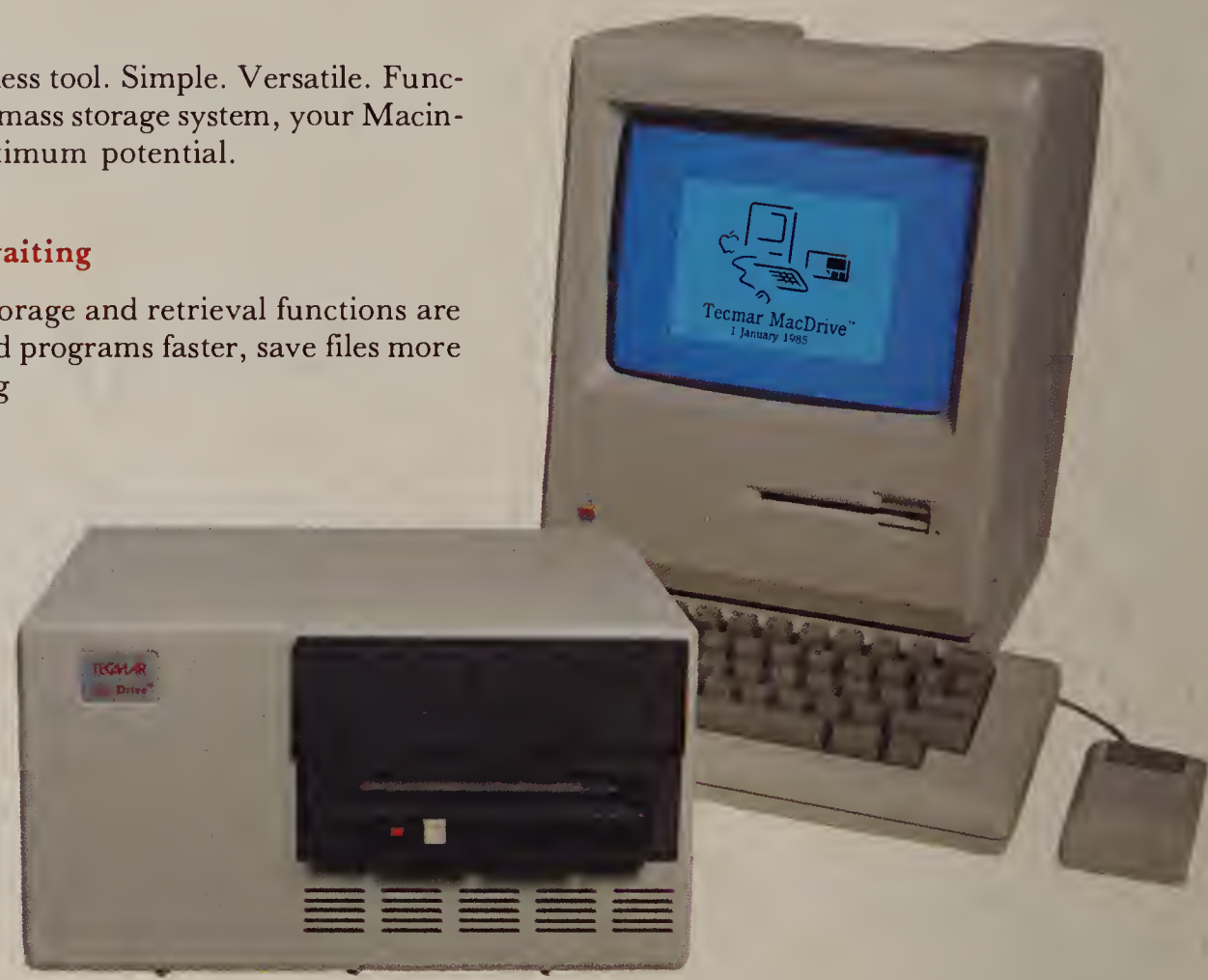

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